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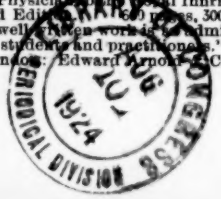

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The vagus is the motor and secretory nerve to the gall-bladder and bile passages, and is inhibitory to the sphincter of the ampulla of Vater. The sympathetic, deriving its fibres from the ninth right intercostal segment, is the sensory nerve to the gall-bladder and ducts, and is inhibitory to the muscular wall but supplies the motor filaments to Oddi's sphincter. Thus stimulation of the vagus causes emptying of the gall-bladder through a relaxed sphincter, and stimulation of the sympathetic causes closure of the sphincter and filling of the lax-walled gall-bladder with bile. The vagus in the stomach is again the motor and secretory nerve, and is inhibitory to the pyloric sphincter. The sympathetic derived from the fifth, sixth, seventh, eighth, and ninth thoracic segments is inhibitory to the muscle in general, but motor to the pyloric sphincter. The ninth intercostal segment is mainly responsible for the contraction of the pylorus. The pancreas derives its nerve-supply from both sympathetic and vagus. Stimulation of the vagus causes profuse thin secretion from the pancreas, whereas stimulation of the sympathetic is followed by a small but thick secretion. The sympathetic filaments of the pancreas are mainly derived from the ninth thoracic segment of the cord. With the close developmental origin and nervous association of the gall-bladder, pancreas, pylorus, and first and second parts of the duodenum it must be expected that in their physiological actions and pathological reactions they are closely allied.

Clinically, this is perhaps best exemplified by pylorospasm. Irritation of the mucous membrane of the gall-bladder causes a reflex irritability of the vagus which is most marked by its action in the stomach, where an increase in the amount and acidity of the gastric juice is produced, associated with relaxation of the pylorus and regurgitation from the duodenum. Whereas, in the majority of cases the vagus reflex is the more marked, in others the sympathetic reflex is more evident. In this type of case the inflammation is generally less chronic. As would be expected, it is shown by increased action of that portion of the sympathetic derived from the ninth thoracic nerve. There is a spasm of the ampulla of Vater and relaxation of the gall-bladder walls with consequent dilatation of the viscus. In the stomach there is a spasm of the pylorus, but as the ninth thoracic segment supplies only the pylorus, there is no sympathetic effect on the remainder of the stomach, and the vagus reflex remains unchecked, causing hyperchlorhydria and contraction of the organ. The first and second parts of the duodenum are dilated and the pancreatic secretion is concentrated but small. This condition is clinically known as pylorospasm, and although in the majority of cases the irritating focus is in the gall-bladder, it may occur anywhere in that portion of the digestive tract where the terminal filaments of the sympathetic derived from the ninth thoracic segment are found—namely, gall-bladder, bile-ducts, pylorus, the first and second parts of the duodenum, and the pancreas.

METHODS OF INVESTIGATING SECRETIONS OF THE STOMACH AND PANCREAS.

In all the experimental work on secretions I have been associated with Dr. Mackenzie Wallis, who has conducted the chemical investigations. It has been found impossible to perform each test on any individual patient; in the first place, the demand for hospital beds is so great that no patient can be kept waiting for operation for sufficient time, and in the second place, one did not feel justified in submitting patients to the discomfort of repeated examinations with the stomach and duodenal tubes.

Analysis of External Secretions.

In the majority of our cases we have analysed the one-hour test-meals. A standard meal of one pint of weak tea without sugar or milk and 2 oz. of toast is given after a 12 hours' fast and the contents of the stomach drawn off through a stomach-tube one hour later. The result is analysed for free HCl, combined HCl, mineral chlorides, and digestive activity. This method has the advantage of simplicity and causes the patient the minimum amount of discomfort.

Fractional Test-meal.—A narrow bore tube is passed into the fasting stomach and the residual secretion is aspirated. With the tube remaining in position the patient is given about a pint of oatmeal gruel. A quarter of an hour later 20 c.cm. of fluid are aspirated for analysis. Further specimens are collected at intervals of a quarter of an hour up to the end of the first hour, and then at half-hourly intervals until two and a half hours after the meal was given. The specimens are analysed for free and combined HCl, mineral chloride, and bile.

Duodenal Tube.—It has been claimed by Meltzer[2] that a solution of magnesium sulphate applied directly to the duodenum causes relaxation of the walls of the gut and of the sphincter muscle of the ampulla of Vater, and almost simultaneously a contraction of the gall-bladder. The flow of bile into the duodenum is thus stimulated. Lyon,[3] basing his experiments on this fact, first described a method of measuring the rate of flow of bile into the duodenum after the injection of magnesium sulphate, and also of segregating the bile, so that the fluid coming from the common bile-duct, gall-bladder, and ducts in the liver might be collected and examined separately. The patient is examined after a 15 hours' fast, the mouth is washed out with a solution of 1/1000 potassium permanganate followed by a weak solution of zinc chloride, and then a sterile duodenal tube passed into the stomach and some of the contents aspirated into a sterile vessel. The stomach is now washed out with sterile water, the patient turned on the right side, and the hips slightly raised by a pillow. The patient is instructed slowly to swallow the tube to the duodenal point, meanwhile drinking a glass of water. It usually takes about 15 to 45 minutes for the tube to pass through the pylorus. This is recognised by the duodenal tug and by the fact that the liquids, such as broth, swallowed by the mouth are not recoverable through the tube. When the duodenum

[1] THE LANCET, 1923, i., 265.

[2] Amer. Jour. Med. Sci., 1917, cliii., 460.

[3] Jour. Amer. Med. Assoc., 1919, lxxiii., 980.

is reached a few cubic centimetres of air are forced down the tube with a syringe to dilate the duodenum and prevent injury to the mucosa. The contents of the duodenum are aspirated into a sterile bottle. They are greyish in colour, and thick, from the presence of much mucus. Bile is absent from the fasting duodenum. 50 to 100 c.cm. of 25 per cent. solution of magnesium sulphate are next injected through the tube and then very slowly aspirated into a sterile bottle. Within ten minutes the aspirated fluid is seen to be tinged with yellow, which gradually increases until it is of a pale yellow colour. A third sterile collecting bottle is substituted and aspiration continued until, by watching a window in the tube, the fluid is seen suddenly to change in character, becoming darker in colour and thicker in consistency. This, Lyon states, is due to the contraction and evacuation of the gall-bladder, the proceeding bile being derived from the common bile-duct. It amounts to 50 to 100 c.cm. and is collected in a fourth sterile bottle. The bile is not secreted in a constant stream but in a series of little puffs, this being most apparent when the stream of bile in the extra-hepatic ducts is used up.

Examination of the Fluid.—In the healthy patient the bile collected through the duodenal tube is free from pus, epithelial cells, and red blood cells. Mucus is present, but in solution. In inflammatory conditions involving the common bile-duct alone—e.g., early catarrhal jaundice—examination of the bile in the third sterile bottle—i.e., bile from the common bile-duct—shows that it is rather thicker than normal and darker in colour; flakes of mucus are plentiful, and examination under the microscope reveals the presence of pus cells and occasionally red blood cells. In pure cases of cholecystitis the bile from the common bile-duct may be normal, but bile from the gall-bladder may be found to be rich in mucus, pus, and columnar epithelial cells; its colour is paler than normal and organisms have been found on culture. In some cases of gall-stones, crystals of cholesterin and bile-salts have been found. In one case described by Lyon several small faceted stones were recovered. There has been considerable discussion as to how the presence of a solution of magnesium sulphate in the duodenum causes a flow of bile. Meltzer's view has already been mentioned—namely, that the salt acts directly on the muscle of the duodenum and reflexly on the muscle of the extra-hepatic bile-passages. It has been claimed that osmosis is responsible for the attraction of the bile into the duodenum, and it is shown that certain other neutral salts may be used in place of magnesium sulphate.

In our work Dr. Mackenzie Wallis and I have paid particular attention to the presence of pancreatic juice in the fluid obtained through the duodenal tube. We were particularly fortunate in our observations on one case of Mr. H. J. Waring's. A married woman of 34 had had intermittent jaundice for six weeks which had now settled down into a jaundice of the progressive type. She had a little pain in the right subcostal region and had complained of slight flatulence. The gall-bladder could not be palpated, and Murphy's sign was negative. A preliminary diagnosis of gall-stones in the common bile-duct or new growth of the bile-ducts was made. A duodenal tube was passed and some of the contents of the stomach collected. The tube was then passed into the duodenum, which was found to be empty or contained mucus too thick to come up the tube. Magnesium sulphate solution was injected in the ordinary way and some was aspirated at frequent intervals for three-quarters of an hour. Each specimen was almost clear and showed no trace of bile-pigment. The tube was then withdrawn into the stomach and a second specimen of the gastric content obtained. On analysis the duodenal content was found to be very rich in trypsin and lipase, but quite free from bile-pigments and salts. The two stomach specimens contained no lipase. It seems clear, therefore, that there had been a free secretion of pancreatic juice into the duodenum. At operation it was found there was a new growth involving the common bile-duct and the hepatic ducts, but leaving the pancreas and ampulla of Vater clear.

The presence of pancreatic juice in this case cannot be explained by the mechanical action of stimulated muscle or by osmotic action. It appears that the pancreas had definitely been stimulated to secrete, and this implies the liberation of secretin. Apperly and Cameron[4] devised a test by which they claim to estimate the alkalinity of the pancreatic juice and so test the pancreatic efficiency. They state that an acid solution in the stomach induces regurgitation from the duodenum of its alkaline contents to neutralise it, and that the neutralising properties of the saliva, bile, and succus entericus are relatively so small that an estimation of the amount of alkali used up in neutralising the acid may be taken as indicative of the quantity of pancreatic juice secreted. A narrow-bore stomach-tube is passed into the fasting stomach and the contents aspirated, then 250 c.cm. of 0·4 per cent. HCl are passed into the organ. Specimens are drawn off every 15 minutes and titrated for acid, the results being plotted on a curve. Before withdrawing each specimen the contents of the stomach are mixed by filling and emptying the syringe two or three times. The rate of neutralisation gives a rough comparison of the rate of production of pancreatic juice in different people, provided there is no obstruction, organic or tonic, to the normal duodenal reflex.

Chemical Examination of the Blood, Urine, and Stools.

This affords much useful information of the external and internal secretions of the pancreas. It is outside the scope of this lecture to deal with the technical details of the laboratory investigations, and only the main objects of the experiments can be described.

Blood.—Examination of the blood for sugar, diastase, lipase, and cholesterol have been carried out in a number of cases. Excess of sugar and diastase indicate a pancreatic insufficiency. Lipase is generally constant at 0·2–0·3, but where there is inflammatory disease of the biliary passages associated with the formation of gall-stones the cholesterol content shows a well-marked increase.

Urine.—The urine is examined for sugar, diastase, and indican. The detection of sugar in the urine is the oldest test for pancreatic insufficiency; as a quantitive test it has now given way almost entirely to the estimation of blood-sugar. The diastase content of normal urine varies from 10–30 units, with an average of about 22·5. In certain diseases of the pancreas, more especially inflammatory, the diastase content rises considerably, generally being found to vary between 50 and 200 units. In one case of acute hæmorrhagic pancreatitis the figure reached 1000 units. Later I will endeavour to show that an increased diastase is dependent upon disturbed function of the parenchyma, and may reach a high figure without any increase in the blood-sugar, which is generally accepted to be due to interference with the islands of Langerhans. Indicanuria is an indication of intestinal toxæmia, and occurs in all cases of deficiency of the external secretion of the pancreas.

Stools.—Many tests for pancreatic sufficiency have been devised which depend upon examination of the stool for the end-products of pancreatic digestion. Excess of fat, undigested muscle-fibre, particularly muscle nuclei, and the absence of proteolytic ferment are all taken as evidence of a decrease in the amount or the activity of the pancreatic juice. Sahli's test consists of feeding the patient with a gelatin capsule hardened to resist the gastric juice and containing iodoform. This should be digested by the pancreatic juice and iodine detected in the urine and saliva in less than eight hours, delay over that period being

[4] Med. Jour. of Australia, May, 1923, p. 521.

considered evidence of deficiency of trypsin. Solomon's test depends upon estimating the amount of lecithin found in the stool after an egg diet. Müller's test for trypsin consists in examination of the stool for ferment after a test-meal. A few drops of the emulsion of the stool are placed on a Petri dish of coagulated blood serum and incubated. The presence of active ferment is shown by the appearance of pits in the coagulum.

Animal Experiments.

Many animal experiments have been devised to show the results of infection of the pancreas in its normal condition, and also when there is interference with its external secretion by ligature of one or both ducts. Truehart found bacteria present in the normal pancreatic duct in 5 out of 223 cases. Experimentally organisms have been introduced into the pancreatic duct directly with a syringe, or the gall-bladder or ducts have been inoculated and the pancreas infected secondarily. Efforts have been made to force infected material into the main pancreatic duct from the duodenum by increasing pressure in the bowel. More success has been obtained in this direction by first causing trauma of the ampulla of Vater, or by passing a thread through the papilla, allowing at least a capillary communication between the duct and the duodenum. Bile and solutions of bile-salts have been injected into the pancreas under different conditions, such as after ligature of one or both pancreatic ducts. Reference to the details and the results of these experiments will be made later.

CORRELATION OF SYMPTOMS.

Alteration in the secretion of the stomach and pancreas is often associated with pain, and in the Hunterian lecture already referred to I endeavoured to make an exhaustive analysis of the types of pain met with in cases of inflammatory lesions of the gall-bladder. Biliary dyspepsia, accompanied as it is by flatulence, is an indication of disordered gastric secretion, and generally denotes hyperacidity. Another symptom of the increase of free HCl commonly associated with gall-stones is referred pain in the left scapular region.

Vomiting of several different types occurs in disorders of the gall-bladder, two of which are definitely associated with disordered secretion of the companion organs. In biliary dyspepsia vomiting may occur after a full meal, but it is not as a rule accompanied by nausea. It is generally small in quantity and of a watery regurgitant type. Occasionally it is copious, resulting in evacuation of the stomach and affording the patient complete relief from pain. Increased gastric acidity is mainly responsible for this type of vomiting. Vomiting that occurs at periodic intervals usually unassociated with any gross disturbance of the gall-bladder and bile-passages, but which may occasionally follow an attack of cholecystitis, is often an indication of pancreatic insufficiency. There is generally nausea present in these cases, but a mild diarrhœa is a constant feature, the stools being fatty and undigested. The attack generally lasts for several days, in more severe cases extending into weeks. Wasting is a constant feature in cases of long duration. The character of the stool, with the marked increase of undigested fat, is symptomatic of pancreatic insufficiency, of which other evidence is given by the increased diastase content of the urine, indicanuria, and sometimes a transient glycosuria. This class of case is due to a catarrhal pancreatitis from invasion of the pancreas with organisms which in the majority of cases appear to be derived from the gall-bladder. During the attack there is definite evidence of diminution of the external, and often of the internal, secretion of the pancreas.

Hyperchlorhydria and Regurgitation.

Working with the one hour test-meal, Dr. Mackenzie Wallis and I have found hyperchlorhydria associated with regurgitation in 90 per cent. of cases of cholecystitis with or without the presence of gall-stones.

A review of the literature of the subject shows that absolutely contradictory results have been obtained by different investigators. Düttman states that irreparable hypoacidity and hypochlorhydria are entailed by inflammation of the biliary passages and they persist in more than 50 per cent. of the patients after operation. The duration of the inflammation and its degree are reflected in the intensity of the secretory deficit in the stomach.[5] Cohn's tables show hypoacidity in the stomach with gall-stone disease in 87 per cent. of 44 cases and in 100 per cent. of 63 cases after removal of the gall-bladder. This constant achlorhydria seemed to be permanent after cholecystectomy. He traced in 11 cases the decline in gastric-juice secretion before operation and after the removal of the gall-bladder. The ferment production he did not find altered.[6] Ohly examined the gastric juice in 200 patients suffering from cholelithiasis. He found that early uncomplicated cases have hypoacidity, while chronic cases present usually subacidity or anacidity. The subjective disturbances localised in the stomach and the amount of mucus present in some patients of the second group seem to indicate an independent chronic gastritis, which might have been the primary affection.[7]

From most of the figures published it will be seen that in the majority of cases of cholelithiasis and cholecystitis the examination of the one hour test-meal shows a deficiency in free acid. This may be due to two causes; first, there may have been less hydrochloric acid secreted by the stomach—a true hypochlorhydria—which may even have amounted to achlorhydria; second, the HCl may have been secreted in normal or even greater amounts but have become partially neutralised after secretion. This second cause is probably the real explanation of the apparent hypochlorhydria in gall-stone cases reported so frequently. In typical test-meals the figures are:—

—	Normal.	Hyperc.	Hypoc.	Regurg.
Total chlorides	0·32	0·42	0·25	0·42
Free HCl	0·02	0·02	0·01	0·01
Protein HCl	0·23	0·29	0·18	0·20
Mineral chlorides ..	0·07	0·11	0·06	0·20

Hyperc. = hyperchlorhydria. Hypoc. = hypochlorhydria. Regurg. = regurgitation.

In a true hypochlorhydria, although the free HCl is diminished in quantity, the mineral chlorides remain about normal, and in hyperchlorhydria the HCl is increased, but the mineral chlorides are nearly normal. In the last type of case, however, the free HCl is markedly diminished, and there is a corresponding increase in the mineral chlorides suggesting that they were increased at the expense of the free HCl—i.e., that the free acid was first secreted and then neutralised. If this explanation be accepted it would seem that there are three definite types of test-meal results: (1) those showing neutralisation of free acid—regurgitant type, comprising 90 per cent. of our cases; (2) those showing true hyperchlorhydria, 8 per cent. of our cases; (3) those showing true hypochlorhydria, 2 per cent. of our cases. A further examination of type 4 shows that an excess of HCl had been secreted in the majority of cases, showing that there was hyperchlorhydria before neutralisation took place.

It is necessary, then, first to consider why in the majority of cases of gall-bladder disease there is increased secretion of HCl, and second why this acid should be largely neutralised whilst still in the stomach. The causes of the increased acid secretion may be three: First, that it is part of a general decrease in alkalinity of the body tissues, as might be indicated by the increased amount of cholic acid in

[5] G. Düttman: Beiträge zur Klinischen Chirurgie, Tübingen.
[6] G. Cohn, p. 306; Archiv für Klinische Chirurgie, 1923.
[7] A. Ohly: Archiv für Verdauungskrankheiten, September, 1923.

the blood and the decreased pH of the urine (4·5). Second, that it is a reflex nervous phenomenon. As the vagus is the main secretory nerve of the gall-bladder and stomach, an inflammatory lesion of the former might be expected to cause reflex stimulation of the vagus in the stomach, resulting in a marked increase in the flow of gastric juice and in the percentage of acid. Third, that it is the natural reaction of the stomach mucosa to the presence of foreign alkali.

Rous and McMaster showed that the gall-bladder is capable of concentrating bile ten times in 24 hours, and that during its passage through the cystic duct bile is concentrated two to four times. In this way, although the gall-bladder has only an average capacity of 2½ fluid ounces, it is able to contain the product of concentration of about 30 oz. of bile, and is therefore largely responsible for the fact that in the normal individual bile does not pass directly into the duodenum when secreted by the liver. Bile is stored by the gall-bladder to be secreted when required for the process of digestion. In the diseased gall-bladder, particularly when gall-stones are present, its function as a reservoir for concentrated bile is much impaired, and there is a tendency for bile to trickle down into the duodenum in a constant stream. This may be in part compensated by the activity of Oddi's sphincter, but it seems clear that in many cases there is a leak of bile into the duodenum. Its presence then in the duodenum in the resting stage causes reflex inhibition of the pylorus and regurgitation into the stomach of small quantities of this foreign alkali.

Regurgitation.—The abnormal regurgitation of duodenal contents that occurs during stomach digestion appears to be due to a reflex through the vagus nerve. I have already stated that irritation of the mucous membrane of the gall-bladder causes a reflex irritability of the vagus which is most marked by its action on the stomach, where an increase in the amount and acidity of the gastric juice is produced, associated with relaxation of the pylorus and regurgitation from the duodenum.

Hyperchlorhydria.—True hyperchlorhydria associated with disease of the gall-bladder appears to depend upon the fact that in these cases the regurgitation into the stomach occurs in less quantity than normal, and the pancreatic juice, itself the main factor in neutralising acid chyme, may be diminished in quantity and alkalinity. It is due to a reflex through the sympathetic deriving from the ninth thoracic segment, causing a spasm of the pylorus and Oddi's sphincter. In these cases of pylorospasm there is, as I have already explained, hyperacidity and decreased pancreatic secretion. The pancreatic juice is further held up by the spasm of Oddi's sphincter, so that the possibilities of regurgitation of alkali from the duodenum are reduced to a minimum.

Hypochlorhydria.

True hypochlorhydria occurring in inflammatory lesions of the gall-bladder appears to be due to intercurrent disease, although it occurs regularly in advanced cases of carcinoma of the gall-bladder.

Gastric and Duodenal Ulcer.

The increase in the amount of hydrochloric acid secreted by the stomach might have been expected to be responsible for the presence of gastric and duodenal ulcers in patients suffering from a diseased gall-bladder, and duodenal ulcer particularly has been described both as a cause and result of cholecystitis. In the series of cases which I have examined or whose operation or post-mortem records I have searched the presence of these ulcers has been so rare (two duodenal and one gastric ulcer in 500 cases) as to warrant the statement that they occur only as intercurrent diseases. The presence of the ulcer is generally diagnosed on the clinical history, and the presence of blood in the vomit is taken as pathognomonic, but gastric bleeding is not very infrequent in gall-bladder disease. Woolsey places these figures as high as 5 per cent. I have only come across it three times and in neither case was any gastric lesion discovered at operation, although, of course, the stomach was not opened. Floersheim states that gastric hæmorrhage as an accompaniment of appendix and gall-bladder disease seldom shows any pathological change in the stomach.[8]

CHANGES IN THE PANCREAS ASSOCIATED WITH THE DISEASED GALL-BLADDER.

Catarrhal Pancreatitis.—I have already given a brief description of the clinical features of this disease—periodic attacks of nausea, vomiting, and diarrhœa with bulky stools laden with undigested fat. The attack is nearly always heralded by a bout of shivering and a feeling of vague abdominal discomfort.

If the abdomen be opened during an attack the head of the pancreas and sometimes part of the body are found to be swollen and hyperæmic. It is very evident, therefore, that the condition is due to an inflammatory process; the rise of the temperature preceded by a shivering attack suggesting that it is the result of pyogenic infection. The route by which infection reaches the pancreas in these cases, and indeed the primary focus, may vary, although in the majority of cases it seems clear that the bacteria are carried from the gall-bladder to the pancreas via the lymphatics. In catarrhal pancreatitis the disturbance of the external secretion is far greater than of the internal secretion, and as the attack generally lasts for such a short time and only the proximal part of the organ seems to be affected macroscopically, it seems probable that the main symptoms are due to temporary obstruction rather than to the suppression of secretion. The absence of jaundice in the majority of these cases is proof that the ampulla of Vater is patent; the obstruction must therefore be further back involving the main pancreatic ducts, and may be due to swelling of the mucous membrane of the ducts or to pressure by the swollen pancreatic tissue. If this latter were the case jaundice should be of more frequent occurrence, for the terminal part of the common bile-duct is buried in the head of the pancreas and should be subject to equal pressure. Evidence of disturbance in the internal secretion is given by the alteration of the diastase content of the urine and occasionally by the presence of glycosuria. In a case of a woman of 45, who was under observation for a long period and whose attacks were of frequent and long duration, the diastase unit was usually under 20, although on one occasion it rose to 50. At no time was any trace of sugar found in the urine and the blood-sugar remained normal. An interesting case is described by Scale Harris.[9] An insurance agent, aged 35, came under treatment for diarrhœa. He had had an operation for gall-bladder infection, when the pancreas was found to be enlarged and inflamed. His stools showed azotorrhœa and steatorrhœa. His urine contained a trace of sugar, and his blood-sugar was 700 mg. per 100 c.cm.

Chronic Interstitial Pancreatitis, according to Opie, may be of three types: interlobular, interacinar, and a degenerate lipomatosis. The interlobular seems to be the only variety associated with gall-bladder disease. Macroscopically the head of the pancreas is found to be somewhat enlarged, nodular and hard, resembling carcinoma. In old-standing cases the changes may extend along the whole body of the organ. Microscopically there is found to be a large increase in fibrous tissue involving the interlobular spaces. As the disease advances there is gradual destruction of the parenchyma by pressure or sometimes by direct infiltration with fibrous tissue. The islands of Langerhans, on the other hand, escape for the most part, and by the destruction of alveoli appear to be in greater numbers than normal. When they are affected it seems to be rather by having their blood-supply cut off than by being themselves subjected to pressure. This form of chronic pancreatitis seems to be invariably caused by infection

[8] Quoted by W. J. Frick and R. D. Irland, Surg. Clinics of North America, December, 1923.
[9] Amer. Med. Assoc., Nov. 3rd, 1923.

through the lymphatic vessels of the head of the pancreas, with the primary focus generally in the gall-bladder. In an apparently undue proportion of cases gall-stones are found in the common bile-duct. Maugauret suggested that this is the result rather than a cause of the pancreatitis, as pressure exerted by the sclerosis of the head on the common bile-duct causes narrowing of the passage and the arrest of the stone. This explanation is accepted by Dever and Ashurst and seems to be the correct one.

The clinical manifestations of interference with the external secretion of the pancreas are much less than they are in catarrhal pancreatitis. Diarrhœa is rare, and nausea and vomiting usually occur late. The lack of complete digestion of protein paves the way for considerable intestinal intoxication from the end-products of bacterial decomposition, and these toxins themselves may have some effect in increasing the pancreatic fibrosis. Glycosuria only occurs in fairly advanced cases, but an increase in the diastase content of the urine is almost constant, the figures varying from 35 to 50 units. This raises the point of why the diastase should be increased. The source of diastase is not known, but is certainly not the pancreas, as extirpation of the organ causes a marked increase in the ferment.

It is probable that diastase is activated by some agent that is produced by the pancreas, and that when the pancreas is diseased this agent is decreased in amount and the unactivated diastase collects in excess in the blood, to be excreted in the urine. As the islands of Langerhans are not apparently affected in interstitial pancreatitis it seems probable that the deficiency of the activating agent of the diastase is dependent upon the destruction of the parenchyma, and I suggest that it is from these cells that it is derived.

Acute Pancreatitis.—There has been much speculation as to the cause of acute pancreatitis, and much work has been done experimentally to support different theories. Flexner found that he could produce acute pancreatitis by the injection of bile into the pancreatic ducts. He states that the bile-salts are the destructive agent, and that the inflammation produced is lessened proportionately to the increase in the ratio of colloid to bile-salts in the injected material. He argued, therefore, that in chronic infection of the bile-passages there is a loss of diffusible salts and an increase in the amount of colloid material, and in these cases chronic pancreatitis should be more common than acute. If this be accepted, we must consider the effect of removal of the secretion of the gall-bladder from the bile circulation. This may be the result of cholecystectomy or of disease—e.g., a stone impacted in the cystic duct with the formation of a mucocele. Here the bile secreted into the duodenum is deficient in mucus unless there is a gross infection of the biliary passages. I have no record of a primary attack of acute pancreatitis occurring in such a case. In fact, rather the opposite has been found. In the majority of cases of acute pancreatitis I have seen there has been mild infection of the gall-bladder resulting in an increase in the amount of mucus.

Archibald states that in infected bile the proportion of bile salts to mucus is increased 6 to 12 times, but my experience has been that this is only the case where the gall-bladder has lost its physiological functions through disease. The secreting pressure of the liver is seldom greater than 350 mm. of bile, and that of the gall-bladder is under 300 mm. of bile, but when the intra-abdominal tension is very much raised, as in straining or vomiting, the secreting pressure of the bile may be raised to 1000 mm. Mann experimented to find out whether the pressure under which bile entered the pancreatic ducts had anything to do with the cause of acute pancreatitis. He writes: "If the bile is injected under a pressure of 500 mm., or a pressure greater than the secreting pressure of the liver, and the contraction of the gall-bladder, acute pancreatitis does not occur. If the bile is injected under a pressure of 1000 mm., which was the maximum pressure produced in the common bile-duct—namely, that produced by vomiting—acute pancreatitis may occur, though rarely." Mann's results afford, I think, a very striking explanation of Nordman's experiment on the injection of bacterial cultures into the gall-bladder of a dog after ligature of the pancreatic ducts. He found that when both pancreatic ducts were ligatured the dog died of acute pancreatitis, but when only one duct was ligatured the dog died of cholangitis. The pancreatic ducts in the dog, as is generally the case in the human, have a free communication with each other. It seems certain, therefore, that when both were ligatured the pressure rose in the pancreas to the danger-point and then the infected bile did the rest. When one pancreatic duct remained patent it acted as a safety-valve keeping down the pancreatic pressure to normal, and the infected bile was powerless.

Writing with Mr. H. J. Waring in the *British Journal of Surgery* in January last we said that normally the pancreatic juice is not activated until it reaches the intestine. If, however, trypsinogen be converted into trypsin in the ducts or substance of the organ, rapid destruction of tissue must be expected, producing a condition so like a perforated gastric ulcer that Mayo has spoken of it as "perforation of the pancreas." Activation of trypsin within the gland is the predominant factor of acute hæmorrhagic pancreatitis. A number of reagents found in the body other than enterokinase can activate trypsinogen, chief among them being blood, infected bile, degenerate leucocytes, and certain bacterial toxins. It is probable that trypsinogen is only activated by infected bile when the latter contains pus cells. In the majority of cases of acute pancreatitis the trypsinogen is activated by blood. If blood be the activating agent trauma should be one of the causes of the disease, and this has often been proved. Case 9 in the article already referred to in the *British Journal of Surgery* had acute pancreatitis after a street accident.

Acute pancreatitis is generally a sequel of pancreatic lymphangitis. Here there is already congestion of the pancreas and a tendency to vomit. Now with spasm of Oddi's sphincter, a reflex from the originally infected gall-bladder, there is regurgitation of bile into the pancreatic duct. Vomiting or straining may raise the pressure of the bile, as already explained, to 1000 mm., and at this pressure some bleeding from the congested bile capillaries is bound to occur, causing liberation of the ferment trypsin whose activity is intensified fourfold by the presence of bile. It is not absolutely necessary to have regurgitation of bile to cause hæmorrhage; this may and does occur through sheer congestion.

In these two lectures I have endeavoured to show that when infection occurs in the gall-bladder a train is fired which always lights gastric fireworks, and may end in a pancreatic explosion.

DONATION TO QUEEN'S UNIVERSITY, BELFAST.—At the meeting of the Senate held on July 16th it was announced by Mr. J. H. Stirling, the treasurer, that the executors of the late Mr. J. C. White, formerly Lord Mayor of Belfast, had forwarded the sum of £60,000 as a contribution to the funds of the University. Under the terms of the bequest, of this sum £15,000 are to be devoted to the foundation of a chair in biological chemistry and to the upkeep of that department. The remaining £15,000 are to be devoted to the establishment of a chair or lectureship in bacteriology and to the purposes of that department. The Vice-Chancellor, Dr. R. W. Livingstone, in moving a vote of thanks to the executors, dwelt upon the great importance to the medical school and to the world of the subjects of biochemistry and bacteriology. The former had in recent times assumed a leading place in medicine, and from it there was promise of great advances in the near future. The University has already a lectureship in the subject, and the Royal Victoria Hospital recently added a biochemist to its staff. It is hoped that the benefaction for bacteriology may pave the way for the foundation of a separate chair, distinct from that of pathology, in that subject. This step has been for some time in contemplation.

AN OUTBREAK OF FOOD POISONING IN GLASGOW:

A CLINICAL AND BACTERIOLOGICAL INVESTIGATION.

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AN outbreak of sickness of some severity, suspected to be due to food, occurred last August in a working boys' home in the east end of Glasgow. As some points of interest arose on the clinical side, and others have emerged as the result of exhaustive laboratory investigations, we think that a brief account of the outbreak is worth adding to the records of similar occurrences. For the entire bacteriological work Dr. Wiseman is responsible.

The home accommodates about 80 working lads, all of whom live in and have their meals on the premises. They are apprenticed out at various occupations throughout the city. Out of the personnel, 80 inmates and four staff, practically all of whom shared the same institutional diet, 15 of the boys and one of the maids developed more or less acute abdominal symptoms, while the remainder entirely escaped even minor disturbance. One of the lads (T. C., aged 20) died suddenly after an illness of less than 24 hours' duration, another became dangerously ill, while three others became severely ill.

General Symptoms.

Symptoms common to the majority were abdominal pain, headache, sickness with vomiting, and diarrhœa. Colic pains were complained of by all except one patient, severe frontal headache by all except three, acute enough in the severer cases to give the face a dazed expression. Vomiting, though frequent, was neither prolonged nor severe, occurred early, and was accompanied or succeeded by diarrhœa lasting from 12 to 24 hours. Excluding those earlier cases which were not observed during the acuter stages, all the others had temperatures varying from 100° to 103° F., returning to normal after the irritative symptoms had disappeared. The clinical characteristics of the outbreak were, therefore, sudden onset with brief and sharp course, symptoms of gastro-intestinal irritation, accompanied by fever with severe headache, and followed by rapid convalescence.

An Illustrative Case.

M. McA., aged 19. This lad took ill about 11 P.M. on August 14th, with abdominal pain, headache, vomiting, and diarrhœa, all of which became very severe during the night. On the morning of the 15th his condition was serious, with great prostration, lividity of face, cramps in the limbs, somnolence, heavily furred tongue, pain and tenderness in the upper region of the abdomen, temperature 102° F., with a dry skin. He was admitted to hospital in the early afternoon, where he vomited a quantity of bright jade green material, the stools being loose, small, and green. Towards evening he became dangerously ill, with feeble pulse and deepening cyanosis. Diarrhœa continued infrequently next day, vomiting occurred once, and his general condition improved. By the following day, the 17th, the irritative symptoms had ceased and the patient was out of danger.

The chart shows the progress of the pulse and temperature. Three of the severer cases who were admitted to hospital for treatment show the same continued fall in the pulse after the temperature had rapidly subsided to normal.

The fatal case (T. C., aged 20) first complained of sickness, vomiting, and thirst on the evening of August 14th, although it appears that he had not been well at his work during the day. He had diarrhœa during the night, and, when the bed-clothes were about to be changed at 7 A.M., he suddenly collapsed and died. The results of the post-mortem and of the bacteriological examination are given later.

The maid, who was the only one of the staff to sicken, took ill on the night of August 13th and was admitted to hospital next day, sharply ill with vomiting, diarrhœa, and temperature 101° F. The stools consisted of blood and mucus; this was the only case in which blood was noticed in the fæces.

Source of the Illness.

As nearly as could be ascertained the periods of sickening of the 16 cases were as follows: morning of August 13th, five cases; evening of same day, one case; morning of 14th, five cases; evening of same day, five cases. The one fatal case and the more severe cases belong to this last group.

The articles of food consumed by all the inmates on August 12th and 13th were investigated, and that upon which most suspicion rested was the meat partaken of on both these dates. The dinner of Sunday, the 12th, had been prepared on the previous

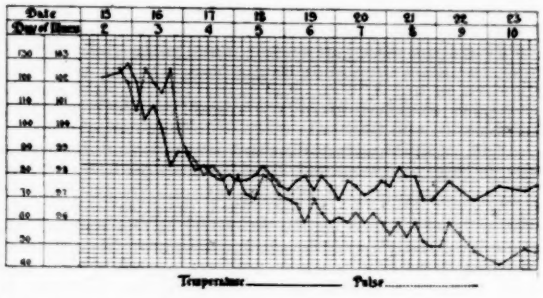

Chart showing progress of the temperature and pulse.

afternoon, and consisted of Argentine boneless meat, which had been boiled, removed from the pot, and served cold next day. The water left in the pot, a large iron one, had been used to boil dried green peas. On Monday, the 13th, the remainder of the meat was served for lunch, most of the boys taking sandwiches to their work. The evening dinner on the 13th consisted of Lorne sausage and potatoes, along with the remainder of the peas and gravy left over from Sunday's dinner. Unfortunately, none of the food, with the exception of one or two pieces of uncooked sausage, was available for examination. No specimen of the meat could be got either from the home or the shop from which it had been obtained. As far as the dates of sickening and consumption of food are concerned, the source may have been either the meat or the water in which it was boiled. As only 16 of the 84 inmates were affected, this selective incidence is more suggestive of a source in the meat itself than in the gravy.

Post-mortem Examination of the Fatal Case (T. C.).

Dr. R. M. Buchanan, who performed the post-mortem examination, was of opinion that the conditions indicated gastro-enteritis. The points of main importance were the swollen mucous membrane of the stomach with—

"a large irregular area marked by ecchymoses but no obvious ulceration over the greater curvature. . . . Over the lower part of the ileum there is a faint suffused redness. . . . The mucous membrane of the large intestine exhibits an intense uniform redness in its whole extent. Its contents are scanty, of creamy consistence, greyish yellow, and very slightly tinted with blood."

Bacteriological Examination.

From the rectum of the patient who died a bacillus was isolated in almost pure culture which failed to ferment lactose in one day. Examination of the fermentation reactions of this organism appeared at first to relate it to the Flexner group of dysentery bacilli. After 7–9 days' incubation, however, it was found that the organism fermented lactose with acid production, and in 11 days produced acid and clot in litmus milk. On Oct. 15th, 1923, the original culture and a subculture twice removed from the original were re-tested. Both cultures produced acid fermentation

in lactose and saccharose on prolonged incubation, and both produced acid and clot in litmus milk in 11 days. The subculture was more rapid in its action on saccharose than the original culture. The milk control tubes (*a*) uninoculated, (*b*) inoculated with *B. Flexner* V, showed no visible change in 12 days. The organism was non-motile and was negative for production of indol. It was noted that after 24–28 days the lactose and saccharose fluid media tended to become alkaline. Animal experiments will be detailed later.

The reactions just described place the bacillus in question outside the Flexner group of dysentery bacilli, apart from the fact that it gave negative results in agglutination tests with *B. Flexner* V, W, X, Y (Oxford), and Z. Excepting the reaction in litmus milk, this T. C. bacillus resembles in "sugar" fermentations, non-motility, and negative indol formation the Sonne III. type of dysentery bacilli. Marked differences from this type were: (1) greater toxicity of the T. C. bacillus, assuming it to have caused death; (2) its greater sensitiveness in agglutination tests with normal sera; (3) behaviour in litmus milk.

It was found when blood serum agglutination tests with the T. C. organism were being done, that the highest end-point reached (400) was with a serum that had no connexion with the outbreak. This reaction was given in five hours. The best reaction on the part of those concerned in the outbreak was an end-point of 125 in five hours and 250 in 22 hours, given by the serum of one of the patients in the first week of illness, and an end-point of 150 in 22 hours given by a second patient in the first week of illness. The serum of this second patient reacted in a dilution of 200 on the sixteenth day and in a third test on Oct. 3rd. Though there is no significant variation in the titre of the serum in these three tests, the figures seemed notable in the presence of saline controls which were uniformly negative. But when the behaviour of the T. C. organism was observed in the presence of serum controls in addition—a series of 21 of them was used—it was seen that the above reactions were not specific. Ten of these controls gave a reaction in varying dilutions. One of them gave an end-point of 40 in three hours, and 250 in 23 hours. The seven controls which were tested in dilutions of 50 and upwards all reacted in the 50 dilution at least when given 23 hours. It followed that so long as the organism retained this sensitiveness to the action of human blood-serum, the results of agglutination tests with it and the sera of the five patients admitted to hospital gave no help.

The T. C. bacillus was not found in the fæces or urine of any of the five patients, and it was the only organism to which any degree of suspicion was attached as the result of the cultural examinations to which the lungs, spleen, blood, stomach and intestinal contents, and urine were subjected. It was found only in the intestine. The enlarged spleen was sterile. The conclusion reached at this stage of the investigation was that this organism possessed a relationship to the lactose-fermenting coliforms from its fermentative and other cultural characters, which marked it off from those of any known group of dysentery bacilli. Discussion of its serological properties and pathogenicity appears later.

Microscopical examination of the organs revealed no notable departure from the normal, with the exception of the excess of lymphoid tissue in the stomach and intestine. Examination of polony sausage and of Lorne sausage derived from the boys' hostel was made by cultural methods and by animal experiments, and did not furnish any organism which came under suspicion.

In dealing with the cases of the four boys from the hostel, admitted to Belvidere Hospital, and with the case of Mrs. J., in the Eastern District Hospital, the fæces and urine were examined and were found not to contain any organism of recognised pathogenicity. The blood-sera of the five were also subjected to exhaustive and repeated agglutination tests, but no results relating them to organisms of known pathogenicity were reached. These serum tests were done towards the end of the first week in hospital and again on August 31st. The lapse of such an interval would warrant the expectation of a positive result had the infection been due to any of the usually recognised aerobic food-poisoning organisms. As already described, these sera were also put against the T. C. organism, and a small amount of blood available from the T. C. case was put against *B. paratyphosus* B with negative result.

Two months after this outbreak, and not associated with it, a bacillus having all the biochemical characters of the T. C. bacillus was isolated in this laboratory from the fæces of a patient, R. R., who had been suffering from intestinal trouble for over a year. This bacillus R. R. was non-motile, did not form indol, nor liquefy gelatin, and fermented glucose and mannite with acid production without gas in 24 hours. Lactose and saccharose were unaffected until a date beyond the ninth and under the thirteenth day of incubation, when fermentation took place with acid production. Dulcite remained negative. After a sojourn of the organism for four days in a guinea-pig it was found that on the sixth day of incubation saccharose, and on the eighth day lactose, were fermented with acid production. Litmus milk remained acid till the eleventh day, when clotting took place. A tabular comparison of these characters shows the similarity:—

TABLE I.—*First Isolation.*

	Organism.	Glue.	Lact.	Sacch.	Dulc.	Mannite.	Motility.	Indol.	Litmus milk.	Gelatin.
I.	Bacillus T. C.	A	—	—	—	A	—	—	Slight A	—
	,, R. R.									
II.	,, T. C.	A	A	A	—	A	—	—	A.C. (11 days)	—
	,, R. R.									

I. = tubes read up till 9 days' incubation.
II. = ,, ,, from 9–12 days' incubation.

Both organisms ferment maltose with production of acid in 24 hours, turning to alkalinity in about 10 days in the aerobic part of the fermentation tube, but do not ferment inosite or salicin. The two organisms are, therefore, in those respects identical. Evidence was also obtained that bacillus R. R. was identical with the T. C. bacillus serologically. A rabbit antiserum prepared with the T. C. bacillus agglutinated the homologous bacillus and bacillus R. R. to precisely the same point, a dilution of 3120, while the serum of the animal antecedently to immunisation failed to agglutinate either organism in any dilution. Bacillus R. R. as isolated from the fæces in the ordinary way, also had the character possessed by the T. C. bacillus of being sensitive to "normal" human sera. The agglutination reaction in a dilution of 200 given by the former in a test with the patient's own serum was lost after the organism had been four days under the skin of a guinea-pig. The behaviour is seen in Table II.

For the purpose in view it did not appear necessary to carry the serum controls to further dilutions, and it is clear that there were no agglutinins in the serum of the patient R. R. to the corresponding organism. It is clear from a view of the above facts, taken together with the fact that the bacillus R. R. absorbs all the agglutinins from an agglutinating serum of titre 3120 prepared with the T. C. organism, that these two organisms are to be regarded as identical. It was to be expected that had the bacillus R. R. been the cause of the trouble in an illness of over a year's duration, there would have been related agglutinins in the blood-serum. The absence of these was of value in removing suspicion from a bacillus which was not of the proteus type. If, then, this organism is not accepted as of pathogenic import in the case of R. R., an additional ground is furnished for rejecting what is taken to be

the same organism as having pathogenic significance in the T. C. case. Nor does it appear likely that R. R. had been a carrier of that organism during the preceding 12 months, for it was found on only one occasion out of several examinations of the fæces. This case had been the subject of examination in different laboratories throughout the country, but no organism came under suspicion. *B. proteus vulgaris* was isolated in this laboratory at a time when recovery

TABLE II.—*Agglutinations.*

Organism.	Patient "R. R.'s" serum dilution.				Hours.
	25	50	100	200	
Bac. "R. R." (1st plate isolation).	++	++	+	+	22
Bac. "R. R."(guinea-pig).	−	−	−	−	
Bac. T. C. (rectum).	++	++	+	Tr+	

Serum Controls.

—	Ser. 71.		Ser. 87.		Hours.
	25	50	25	50	
Bac. "R. R." (1st isolation).	+++	+++	+++	+++	22 at 50° C.
Bac. "R. R." (guinea-pig).	+	+	+	+	
	Ser. 85.		Ser. 32.		
Bac. T. C. ..	+++	+++	+	−	

Saline controls were always negative.

was becoming marked, and it is not known what part it may have played earlier in the case. This strain of *B. proteus vulgaris* is, however, agglutinated to titre (8000) by a serum prepared with another strain of *B. proteus vulgaris* which is known to one of us to have been definitely pathogenic in man.

On August 9th, almost concurrently with this outbreak, a lactose-fermenting coliform bacillus, *B. communior* (MacConkey, 1905), was isolated by one of us from the blood of an adult patient, Mrs. F., whose symptoms very much resembled those of enteric fever, who resided not far from the boys' hostel, but was not associated with the outbreak. The same organism was isolated from a second hæmoculture of this patient on the 15th, and a bacillus culturally identical with it was present in the fæces and urine. Her blood-serum on the latter date had an agglutination titre of 2500 against this organism, serum and saline controls giving no reaction. This occurrence supported the desire to make a complete survey of the reputedly non-pathogenic coliform bacilli found in the fæces of the five patients of the boys' hostel and in the alimentary tract of the boy who died. The only organism of this kind common to the majority of the sufferers—it was found in five out of six, and was present in the stomach contents of T. C.—was *B. communior*. On the assumption that it might have taken on a pathogenic character in some food-stuff that had escaped collection and examination, it was thought expedient to ascertain if the patient's sera in our possession would throw light on this possibility. Two sets of sera were available, one set of five taken towards the end of the first week of illness, and one of four taken on the sixteenth day. Agglutination tests were done with all these sera and the *B. communior* of the five patients. If this organism were the causal agent, it was clear that the five cultures, or the majority of them, would be homologous and would give the same reactions with any one serum. It became obvious that they did not do so. In only one test out of 25, with the first set of sera, was a reaction given in a dilution of 50, five reacted in a 25 dilution, and in 10 of the tests (five of which pertained to one organism) no reaction was given. The saline controls were always negative, while of 22 serum controls used one gave a reaction in a 200 dilution with the *B. communior* of T. C. It was noted also that it was not a feature of the results that a given patient's serum gave a better raction with his own organism than with one or more of the others. When it was seen in the tests with the second set of patient's sera that there was practically no variation in the titres between August 22nd and 31st, the conclusion was reached that we were not dealing here with an ætiological factor. The immune sera of three rabbits prepared by inoculation with two of these organisms and with that of Mrs. F. (hæmoculture) showed definitely that these three bacilli were heterologous.

It would seem to follow from this that the moderate reactions just described are not on a par with those given by certain "normal" sera with *B. enteritidis* Gaertner—e.g., in a series of 50 normal sera tested in this laboratory against *B. enteritidis* Gaertner 10 gave good reactions in a dilution of 85; of these 10, five reacted in a 125 dilution and two reacted well in a 250 dilution. The absorption tests done on these last two, and on one of the five, showed complete absorptions. The serological specificity of *B. enteritidis* Gaertner renders it likely that these results indicate a specific relation between this bacillus and the sera. On the other hand, similar reactions with different strains of *B. communior*, freshly isolated and proved heterologous, evidently mean some degree of sensitiveness to the action of certain human sera simply as such.

The search for anaerobic bacilli in this investigation did not produce any indication that any solution was to be found along this line.

The Ætiological Factor a Toxin.

In dealing with all the living micro-organisms that could by any possibility have caused this outbreak, we have wished to place upon a sound basis of fact our conviction that it was due to the ingestion of a toxin. It remains obscure what the nature of the toxin was, much yet remaining to be done to place the isolation of such bodies from food-stuffs and their description upon a satisfactory basis.

Animal Experiments to Ascertain Pathogenicity.

The following animal experiments were carried out to ascertain pathogenicity:—

(*a*) Half of the washings of 3 grammes of polony sausage and of Lorne sausage, which were derived from the home, were injected subcutaneously into guinea-pigs. The animals remained well.

(*b*) 0·1 c.cm. of a 24 hours' broth culture of the organism referred to as the T. C. bacillus (found in the rectum post mortem) was given subcutaneously to a guinea-pig on Sept. 5th. The animal remained well. On Nov. 21st a guinea-pig received intraperitoneally 2 c.cm. of the filtrate of a five days' broth culture of this organism and remained well. On April 10th, 1924, a guinea-pig was given subcutaneously 0·5 c.cm. of an 18 hours' broth culture, while another received 0·5 c.cm. of the same culture intraperitoneally. Both animals remained well.

(*c*) To be correlated with (*b*) are the experiments with the identical bacillus R. R. A guinea-pig received a subcutaneous inoculation of a saline emulsion of the fæces of the patient R. R. and was killed in four days. There was a dense fibrinous exudation at the site of inoculation and the late lactose-fermenting bacillus was found here by culture without difficulty. It was not found in the contents of the large or the small intestine. Blood culture was negative.

A feeding experiment was done with the same saline emulsion as used for the inoculation with no discernible pathogenic effect.

Experiment with Pure Culture of Bacillus R. R.—On Nov. 29th, 1923, 11 days after the first isolation

of the organism, a guinea-pig received subcutaneously 0·5 c.cm. of a 24 hours' broth culture (from fourth subculture on agar). On Dec. 7th there was an indurated swelling 1½ inches by 1 inch at the site of inoculation. On the 11th the swelling was somewhat less in area, 2 inches by ¼ an inch, and apparently very tender. The animal was otherwise well, and ultimately recovered.

(*d*) The *B. communior* from the stomach of T. C. and that from one of the patients, H., were tested by subcutaneous inoculation of broth cultures in guinea-pigs with negative results. The former was also grown for five days in bouillon and a guinea-pig fed with 2 c.cm. of the filtrate, while another guinea-pig received 1 c.cm. of the filtrate intraperitoneally. Both experiments gave negative results.

Conclusions.

1. It is held that, even in the absence of access to a sample of the meat upon which suspicion mainly fell, the investigations described have been sufficiently comprehensive to exclude the direct action of a living micro-organism, apart from a filtrable virus, as the cause of the outbreak.

2. Before direct microbial action could be excluded, a detailed investigation was made upon an organism of rare occurrence in the human intestine, which organism was found in the fatal case and also in a case of intestinal trouble not associated with the outbreak. Grounds are given for regarding the outbreak as not attributable to this organism.

3. The bacilli described as T. C. and R. R. appear to be members of a serological group which is either a new group or one of very uncommon occurrence. Further, the bacillus R. R. was found to be moderately pathogenic to guinea-pigs.

4. The clinical data (including the selective incidence) combined with the bacteriological results furnish strong grounds for the view that the outbreak was due to a powerful toxin which had an uneven distribution in the material consumed.

AN INQUIRY INTO THE ORIGIN OF SQUINT, LEFT-HANDEDNESS AND STAMMER.

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THE nature and origin of concomitant squint have been explained in physiological terms, but its capricious incidence indicates that further factors must be involved beyond the known physiological ones. Its mode of onset and variability in states of fear or other excitement suggest that, whatever may be the influence of an error of refraction, some other factor must be at work determining the breakdown of the binocular function; but the difficulties of direct investigation of the child's mind appeared insurmountable, and for some time after my attention was drawn to such a possibility I had to content myself with observations confirming the suspicion that the deformity was dependent upon mental states. Soon it was noticed that several squinting patients were left-handed, and further investigation elicited the fact that even when not left-handed themselves a large proportion of the children had left-handed relatives. From this point it was natural to turn to the incidence of stammering, which for many years has been considered a congener of left-handedness, and I discovered that a family history of stammering could often be obtained. Why should a habit which represented a harmless departure from the custom of the herd, carrying with it no generally recognised physical or mental disability, be associated with serious defects of sight and speech? Whatever may be the explanation, the question suggests new paths by which to investigate the origin of squint, if the association of the abnormalities can be established.

I have been able to collect 1000 cases of squint, very few of which have failed to reveal the existence of left-handedness or stammering in some near relative, and it is hoped that the typical instances quoted will be of sufficient significance to justify the absence of statistical proof of the association. Seeking a physical explanation of the relationship seemed like the proverbial search for a needle in a haystack. Stammering has long been recognised to be a "nervous" symptom, and squint is commonly seen to vary with the emotional reactions of the child, so it appeared that research into the relationship of mental states with all three conditions would be more profitable than inquiry into possible structural peculiarities.

Left-handedness.

Though left-handedness has never yet been classified among diseases, yet a most striking feature is the intolerance shown towards it. But this attitude is directed only towards children. Once the individual has been able to weather the storm of disapproval from parents and teachers, he is left alone, and may even be commended if the left-handedness be applied to games. In cricket, especially, we like a left-handed bowler or batsman on our side, for he has a sphere of usefulness which no one else can fill. Superficially regarded, the left-hander is as other men. Often, however, he *is* different from his fellows in certain subtle ways, and the difference seems to be connected with the difficulty experienced in childhood in establishing his right to do as he pleases. Whether he was born with a capacity for complete ambidexterity, and clings to such left-handed activities as have survived parental pressure, or whether he has actually adopted left-handedness as a sign of his desire to be different from the authoritative parent, the fact remains that he is almost invariably more critical and self-sufficient than the other members of the family.

The reason for the normal habit of right-handedness is unknown, and a considerable proportion of children show an inclination to use either hand in their earliest activities. As a rule, perhaps from training or example, the right hand soon becomes dominant, and a habit is formed which remains through life, though sometimes there seems to be a reservation in the individual's mind, for I have patients who assert that notwithstanding their right-handedness, they "feel" left-handed. Such a case, a right-handed woman of 28, came under my notice last year. It was found that the girth of the left arm was three-quarters of an inch larger than the right. Further, the measurement across the left breast was larger than that of the right by the same amount. There was nothing in the medical history to account for this difference, or for the "feeling" of left-handedness. Another right-handed patient, a woman of 25, told me that it was "the greatest ambition of her life to be left-handed."

Development of the Condition.—So far as I know, few investigations have yet been made into the earliest manifestations of left-handedness, such records as exist being merely incidental to other aims. An instance of late emergence of left-handedness came to my notice recently.

A naval officer had occasion for the first time to chastise his little girl of 4, for naughtiness. Later in the day, when good relations appeared to have been re-established, she was invited to play a game invented in the family. Over the perforated seat of a chair was stretched a piece of paper, and the players tried to pierce the paper over one of the holes with a lead pencil. The father tried first, and then passed the pencil to his daughter, who took it and struck with it in her left hand. When she did this a second time, the father commented upon it, and tried to persuade her to use the right hand in place of the left, but without success. This was the first occasion on which any sign of left-handedness had been given. In this family the father has a tendency to divergent squint, the mother's only brother has a pronounced convergent squint, in one or two of the other children there is a suggestion of divergent squint, and the mother, though

not left-handed, uses mirror writing in making private notes.

A more significant case seems to be that of a boy of 7, who had squinted since the age of 2. He was right-handed until he was 6, when he became very friendly with a left-handed boy, and began to copy him, even to the extent of learning to write with the left hand. The habit was "broken" by the parents. No other squint, stammer, or left-handedness could be traced in the family.

A curious feature about left-handedness is that it is rarely as complete as right-handedness. We are familiar with the man who bats left-handedly, and bowls with the right hand, or vice versa. One of my patients is left-handed only for two-handed activities, such as swinging a golf club or cricket bat. Another uses a pen with the right hand and a pencil with the left. Yet another sharpens a pencil with the left hand, but at table holds knife and fork normally. A fourth invariably blows his nose with his handkerchief in the left hand. There may be one or many left-handed activities in people who are regarded by their fellows as normally right-handed.

Whatever may be the cause of this departure from the usual custom, there seems in most cases to be no reason for attributing it to physical conditions.

Emotion as a Causal Factor—I have found only one case where a left-handed parent did not object strongly to his child following his example. One man had resorted to the extreme measure of training himself to be right-handed, in order to influence his left-handed son, when coercive measures had failed. He declared that it was only a matter of "will-power." It is strange that no left-hander feels that this blame is merited; he, at least, is never ashamed of his habit. A little patient of mine was said to have become left-handed in order to please a favourite left-handed uncle. It would be interesting to know why she did not remain right-handed in order to please her right-handed father. These examples suggest an emotional factor in the development of left-handedness.

Incidence of Left-handedness.

The problem becomes more complex when we find that boys are more likely to be affected than girls. J. W. W. Ballin, in his annual report, Board of Education, St. Louis, 1915–16, found amongst nearly 90,000 pupils that the percentage of the left-handers in boys was 3·6, and amongst the girls 2·1. Mental defectives, too, include a high proportion of left-handers, and so do twins. I am under the impression that the elder twin is more likely to be left-handed, and that in large families the eldest child, especially if a boy, is more commonly affected. In the case of mental defectives it might be imagined that structural brain formation had determined the issue as to which hand should be used, but that a functional element is present is indicated by Hugh Gordon,[1] who states that "spontaneous change of left-handedness to right-handedness in writing amongst mental defectives is often found to be associated with progress in school work and in intelligence." Lombroso found a high percentage of left-handers amongst criminals. Is there a common factor present in these various classes which tend to develop the abnormality? The mental defective has a definite inferiority in comparison with his fellows, and a feeling of resentment may perhaps be attributed to him; as this inferiority passes away, he tends to conform to the usual custom. The criminal is in conflict with the herd. The boy is more aggressive and independent than the girl. The common factor which seems to emerge is a spirit of contrariness. As already stated, the attribute of left-handedness in the adult does not carry with it any imputation of blameworthiness; other things being equal, he is assumed to be as useful a member of society as the right-hander. Does he then show any sign of the spirit of contrariness? My observations point to the conclusion that in many cases the left-hander has his own peculiar temperament.

A mental expert, corresponding with me on this subject, wrote: "I have a patient who is extremely left-handed, and his past history relates terrible conflicts with his father. In fact he is the most left-handed man I have ever known, except myself! I, too, have experienced much conflict with father substitutes—e.g., commanding officers, Government officials, &c." A still more striking example of obstructiveness is that of a man, the only left-hander of his family, whose opposition to authority of any kind was so great that he relinquished post after post abroad and at home, when it appeared that he was settled for life, because some higher official ventured to control his actions. This resentful attitude towards authority can be found in most left-handers. It may be urged that mankind naturally tends to resist authority, but if the left-hander be compared with the rest of his family, brought up by the same parents, it will be found that he is generally distinguished by being to a greater degree than his fellows self-reliant, critical and obstinate, refusing to be driven, but accepting guidance from those he loves.

Relationship of Left-handedness and Stammering.

The relationship of left-handedness and stammering has been shown by the onset of the latter where forcible restraint of left-handedness has been practised. On the other hand, stammering appears sometimes to have resulted from an attempt to make a right-hander ambidextrous. An elderly father of strong personality, who is keenly interested in manual dexterity, had a right-handed daughter, whom he taught to use the left hand without much difficulty or undesirable sequelæ. An attempt to educate in the same way a son who was born two or three years later had to be abandoned owing to the development of a stammer.

Whether parental pressure had any influence in determining the incidence of left-handedness on the female side only in the following family history I was unable to ascertain.

A girl of 8 was brought to me suffering from a blinking habit. She was left-handed even for writing. She was the youngest of the family, which consisted of two sisters, the elder of whom was slightly left-handed, and one brother, who had an internal squint. The mother was left-handed for most activities; so was her only sister, but her only brother, who died at the age of 16, was normal. The mother's mother also was left-handed. There had never been any stammer in the family. Thus, for three generations left-handedness was present in the females only.

Hugh Gordon [2] published in 1920 the result of an experiment at Lingfield Colony Special Schools (Epileptic Children) upon certain "stationary" children, who seemed to have developed up to a certain point and then stuck. It had been thought that left-side training might open up additional centres in the brain, and enable education to proceed in these children, who had been stationary for two to four years. A class was formed and some progress was made, when, about five months from the commencement of the experiment, it was found that the pupils, beginning with those who were making the best and most regular advance under the "left" method, began to speak in halting phrase, and gradually developed a pronounced stammer. The speech had previously been normal. A singular fact was that so long as the movements of the left hand were purely mirror-writing movements—which was the procedure adopted at the beginning of the training—there was no interference with speech. The stammer appeared only when the left hand was made to perform movements in the same direction as those normally performed by the right. This progressive speech defect became so alarming that it was decided to abandon the left-side work in favour of ambidexterity. By the time that both hands had begun to acquire steadiness and skill, an improvement in speech was noticed, and after some weeks the defect had entirely disappeared.

On the other hand, I have known of only one case where a left-hander developed a squint when an attempt was made to enforce right-handedness.

[1] Brain, vol. xliii., Part iv., 1920.

[2] The Times Educational Supplement, May 6th, 1920.

A boy of 7 or 8 was sent to a school where the master insisted upon his becoming right-handed. The boy found difficulty in compliance, was beaten, and at each beating developed a temporary squint. An example of the variation of squint and stammering cannot be given, though I have seen a boy who stammered more when he read the letters on the test type with the squinting amblyopic eye than he did when the other eye was used. Another boy developed a squint of the left eye after an injury when 4 years old, and a month later began to stammer. A strange case is that of a woman of 38, who, in the late months of pregnancy, awoke one morning with a paralytic internal squint of the left eye. In her alarm she called her eldest daughter, aged 19, to come and see what was wrong, and the latter, as soon as she saw the deformity, immediately began to stammer, and continued to do so for many months.

Whilst it is usual for these three abnormalities to occur singly in the various members of the family, two or all of them may be, or may have been, present in the same individual, though all may not persist. Thus it is fairly common to hear that a squinter used to be a stammerer or left-hander in childhood, without any trace being present when he grew up. An instance has been given where the left-handedness occurred only on the female side of the family. Squint, too, may be confined to one sex, as in the family of a patient aged 19, whose squint developed after going to school. He had three sisters, aged 16, 24, and 30 respectively, who were normal, whilst of three brothers, one, a squinter, died of consumption at the age of 27; a second, aged 32, also squinted; and the other, aged 12, was normal. The father and father's brother both squinted.

The Emotional Factor in Stammering and Squinting.

It is perhaps hardly necessary to say much about the emotional origin of stammering, which is commonly recognised to be a nervous symptom, but it may be interesting to notice that just as left-handedness can be partial, and squint intermittent, so can stammer be confined to specific occasions. Some stammerers are affected only in the presence of superiors, some fail at certain letters, and the experience of war cases showed that a stammer was often initiated by a single emotional experience. A sufficient number of cases have now been analysed to demonstrate the effect of emotion in starting and perpetuating the disorder of speech.

In the course of observation of squinting children I have been able to find abundant evidence that emotion may determine both the incidence and extent of the deviation. Excitement often plays a prominent part, and the following instance illustrates how fundamental may be the stresses, how early they may arise, and their value as an indication that the child's mental development is not proceeding smoothly.

A little girl of 2 years and 4 months was brought to me in July last with a left internal squint. The mother could not account for the squint, but a habit of standing on her head recently indulged in a good deal by the child, had been suggested as a cause. She was right-handed, and the speech was normal. In October the mother reported that the child had begun to stammer during the past two or three weeks, and also during the same period had become left-handed for putting food into her mouth, or for picking up anything. She used the left hand for most purposes more than the right. When asked if the emotional atmosphere at home had changed lately, the mother replied that she and her husband had not been happy together for some months, and that in the past two or three weeks they had been discussing the advisability of a legal separation. She was persuaded to attempt to readjust the differences at home, and was successful in getting her husband's coöperation towards this end for the sake of the child. A fortnight later she announced that the stammer had disappeared as quickly as it had come. The left-handedness and squint remained unchanged. A few weeks later still, the left-handedness, too, had practically gone, and the squint, though present, was much less noticeable. A point bearing upon the possible relationship of the abnormalities to unhappy home conditions is the child's jealousy of her mother. If anyone in the family put his arm round the mother, the child would push him away in a passion, shouting "Go away, that is my mummie," and would cry if she were not obeyed. It should be added as an indication of the parental trends that the father used to stammer when a boy, and that the mother suffered from fits until the age of 7, and is still so afraid of the dark that she will never go upstairs without a lighted candle. Her eldest sister is partially left-handed—e.g., for cutting bread and peeling potatoes, but in her work as corset-maker is right-handed.

A similar instance of left-handedness on the female side associated with a family history of speech defect and squint, is the following:—

A girl, an only child, aged 6, has a left convergent squint and is left-handed. Her father has a left convergent squint. He has one brother, who is normal. His father and father's sister suffered from an impediment in speech. The child's mother is left-handed, and so is her maternal grandmother. The latter's two sisters were left-handed, but her two brothers were normal. It will be seen that the left-handed woman chose a squinting husband.

That the patient is unconscious of the emotional processes at work is shown by the following case:—

A woman of 28 consulted me a year ago. As she had a tendency to squint, I asked who was left-handed in the family. She replied that it was herself. Her father stammered when nervous. She has one brother, who had crystallised his stresses into a nervous breakdown and seasonal attacks of eczema. Being interested in the occurrence of these defects in her family, she asked if any practical value was likely to follow from their investigation, and I replied that I thought I could guess some of the attributes of her future husband. I applied the above simple formula, which is really a corollary to the Freudian theory that in marriage the girl tends to seek the father substitute, and the boy the mother. If the father is left-handed, and a fixation has occurred, the daughter is attracted by a left-hander, or a man of that characteristic temperament, and so forth. I described to my patient the stammering type in general terms, and ended by saying that in all probability her husband would stammer or squint. She then told me that she had just broken off an engagement of two years' standing, preferring to remain at home with her mother. As for the defect predicted, she stated: "Everyone used to say that he squinted, but I could never see it." She thus had a blind spot for a deformity, which is connected in some mysterious manner with abnormalities occurring in herself and her father.

The selection of like characteristics is not confined to adventures matrimonial.

I know of a stammering father who had a stammering son. This boy was sent successively to a kindergarten where the mistress stammered, and to a school with a stammering headmaster. He was subsequently articled to a well-known architect, who was similarly afflicted. When I first saw his wife I recorded that although the son did not marry a stammerer, he married into a stammering family, for his wife's only sister stammers very badly. Three years later the wife complained to me that owing to worry about her only child's health, she herself had begun to stammer slightly.

In a large number of cases of squint it has been rare to find instances in which only one member of the family has been affected. Sometimes there has been an only child, or there has been a considerable difference in age between the patient and the rest of the family. On the other hand, the incidence of squint in the family may be less than might be expected from the history of its occurrence in the preceding generation. A girl of 8 showed deviation only on alternate covering of the eyes, though she used to have a well-marked squint. She has two brothers and three sisters who are normal. Yet her father's eldest and youngest sisters and also a brother have convergent squint. There is no left-handedness or stammering in the family.

Occasionally I have found monocular amblyopia without sign of present or past squint, associated with one of the other two abnormalities. This occurred in a boy of 9, an only child, who was very hypermetropic, and had unequal pupils. He was left-handed, and so was the paternal grandfather, but not the father. The boy was very fidgety and nervous, and was described as being very resistant to his mother, who was "practically an invalid from nervousness." The left-handedness in this case may be due to disease, since the history showed that he had suffered from "infantile paralysis of the right leg," the effects of which, however, had completely disappeared. The case is now recorded, because

although when tested he obviously wrote better with his right hand, and admitted that it was easier than with the left, he always used the latter for writing at home.

Nature of Emotion Influencing Squint.—As a rule the nature of the excitement influencing squint is not examined by the parents, and it is difficult for the surgeon to do more than surmise as to what is passing in the child's mind.

I have seen a little girl who squinted when she sat on my knee, and faced the father (of whom the child was afraid, according to the mother's account), and yet had straight eyes when she sat on her father's knee and, facing me, accepted my friendly overtures. Another child with a squint, restless in her mother's arms, and afraid of my approaches, lost the deviation when I tickled her and made her laugh. Yet another, with 6D hypermetropia in each eye, was brought to me with a history of a squint which, however, could not be evoked even when she was without her glasses, but appeared at once when I asked her to look at her mother and be scolded, the latter having previously told me that a reprimand often upset the balance of the eyes. The same result occurred in two boys of about 10, who had recently had operations for convergent squint. The resultant parallelism had been demonstrated to another observer who was sceptical of the theory here propounded. I suddenly spoke to the boys in a loud threatening voice, and both of them immediately relapsed into a bad squint, which slowly disappeared when they realised that I had been playing a trick upon them.

A suggestive example is that of a boy of 8, whose squint dates from a fit when 6 months old. The squint is never constant, but appears only when he is nervous—e.g., when meeting strangers. He was left-handed when a baby, but was checked. He has always ridden his scooter left-footed. He has only one brother, aged 17, who stammered when a child. The father's father squinted. It will be noticed that although the left-handedness has been eradicated, he still clings to left-footedness.

A similar emotional cause may be at work in these cases, as in a left-handed girl of 7, who was referred to me because she complained that large letters on the blackboard looked small, and vice versa. She was described as being very determined and independent. She had one brother who stammered occasionally. She confided to me that the ocular phenomenon, which lasted only one week, was due to jealousy, her little girl friend having chosen someone else to play with. In her own words, "she did not want to see things right."

The following case tends to confirm the opinion that deep-seated emotional reactions may be connected with the development and persistence of squint.

I have under my care at the present time a little girl of 2½, who developed a squint at the age of 2. The curious thing about this squint was its regular appearance and disappearance on alternate days. If she squinted on Sunday, she did not on Monday, and so on. Cases have been reported of children who wrote on some days with the left hand, and on other days with the right. The only explanation which the mother could offer was her practice of keeping the children at home every other day, whilst she worked long and hard in order to be free to take them out of doors for a long spell the next day. On one occasion she reported to me that the father had been unwell, and had stayed in bed for the day. The little girl as a treat was allowed to have breakfast in bed with Daddy. It was her "squinting" day. The father whispered to the mother that there was no squint, and during the whole time in bed none developed. When, however, the mother came to fetch her away, the squint appeared, and persisted throughout the day, "according to plan."

The reactions of a child who developed a squint at a later age afford a better opportunity of studying possible emotional causes of the deviation.

A little girl of 6 began squinting during a fit of coughing, in June, 1919. The eyes became normal in the following months, but the squint recurred in the winter, and in February, 1920, she was taken to an oculist who prescribed R. and L. +1·5 sph. At that time she was seeing double. She was brought to me in August, 1921, when I found normal vision in each eye and 8° esophoria. Diplopia could be easily induced, fusion being obtained when the object was 1 metre distant. In the following winter she had whooping-cough, and it was noticed that after a fit of coughing a definite squint was present. As the effort to overcome 1·5D hypermetropia could have little effect in throwing the eyes off their balance, I advised that the glasses should be discarded. In August, 1922, she was again examined, and the esophoria now varied from 8° to 12° or more. She had previously told her father that she was anxious for the squint to be worse, as she particularly wished to wear glasses in order to be like her mother and brother. Occasional diplopia was complained of. At the next visit, in February, 1923, it was reported that although she had not worn glasses for over 12 months, she had been quite comfortable and without squint until two days previously, when the right eye had deviated inwards momentarily. On the following day she suddenly squinted badly with the right eye during a grammar lesson at school. The mistress told her not to squint, and she immediately began to see double. I inquired closely into the possibility of a sudden strain upon the accommodation at the time of onset of the squint, but found that the child had been quietly listening to a lecture by the mistress. When I asked what special part of the subject was being dealt with, the child replied "genders." She was described to me as of an exceptionally jealous disposition, and there had been trouble in the home when the father returned after several years' absence in the war, owing to her wish to monopolise the attentions of the mother. In February the mother was dying of cancer, and the domestic arrangements required that the little girl should sleep with the father. When she came for examination in March she entered my room without a trace of squint, but when attention was paid to her the right eye deviated inwards. She now gave the impression of being a precocious child. She was seen again in May, 1923. No squint had been noticed for some weeks, although she was still without glasses, until the morning of the consultation, when a marked squint had suddenly developed at school. She returned home with the *left* eye shut and the face screwed up. The mother had died early in March, and, the father having need of a holiday, it had just been decided that the child should be a boarder at the school for a time. The child tends to pick up things with her left hand. She has one brother, aged 15, who is reported to be "short-sighted" in one eye. The father has a slight stammer. He has three brothers, of whom the youngest stammers badly and has squinted, and three sisters who are normal.

Fear as a Cause of Squint.

Fear seems to be a potent cause of squint. I have seen many cases resulting from falls and blows, where it seemed justifiable to rule out the possibility of physical injury to the eye or anatomical nervous system.

A small boy had had a right convergent squint for a fortnight. Two weeks before its appearance he had bumped against another boy, whilst stealing out of the house in his night clothes, unknown to his mother, to buy sweets. He received a "black eye" on the right side, and was so thoroughly frightened, according to the mother (although he admitted it very reluctantly) that he screamed for two hours. He had suffered from twitching of the body and especially of the head for six months, and was very restless, indeed almost choreic, when seen at my clinic. The squint, which had certainly not been present before the accident, disappeared, but the restless movements continued. He cried much, was afraid of the dark, developed violent headaches and photophobia, and it was obvious that the mental shock had been severe. The family history revealed that of his two sisters one, aged 12, was "backward and dull and always ill," the other, aged 6, was attending the clinic with inflamed eyes, and the only brother, aged 11, was suffering from "nerves and heart and bad stammering." The father stammered, and the mother was left-handed.

I would draw particular attention to the occurrence of choreic movements in this instance. They have been present either in the patient or the family so frequently that I have thought it worth while to inquire, as a routine procedure, into their incidence, with the result that a number of cases showing their occurrence in squinting families has been collected.

One boy who came for treatment of occasional left squint developed a very pronounced twitching of the left side of face and body, following the application of atropine to the eyes. He became rapidly worse, and the twitching was soon so severe that the doctor diagnosed meningitis. The squint became permanent and greater in degree during the illness. The boy had two sisters, who were normal. The mother had four brothers, one of whom squinted, and six sisters, of whom the eldest was left-handed. It should be added that the father "suffered terribly from neurasthenia, and sometimes was not quite rational," after being in action at the Jutland battle.

It may be suggested that the onset of the chorea merely coincided with the use of the atropine. In favour of the possibility of an emotional factor being present, however, I would point to the cases, of which I have seen several, in which permanent squint has followed as a direct consequence of instilling atropine into the eyes of nervous children. One is apt to forget that the dread of interference with their eyes frequently shown by children is instinctive and not subject to reason. Indeed it is not unusual to find adults who cannot control their fear of the most gentle manipulation of their eyes, and who display the greatest dread of "going blind," although only temporarily, from the application of a mydriatic. The failure of accommodation, possibly associated with a fear corresponding to that of the strong man who faints when he is vaccinated, seems to be sufficient to cause serious disorganisation of the neuro-muscular function.

The influence of fear may be an explanation of the development of squint after whooping-cough, in which the paroxysmal attacks of asphyxiation must have a terrifying effect. I offer the same explanation to account for certain cases of squint following upon operations for tonsils and adenoids. An instance of this is a boy who had a right convergent strabismus after operation. At first inconstant, it became permanent. The boy's mother is left-handed.

Mirror-writing.

The tendency to mirror-writing in left-handers is so well known that it needs only a reference. A more uncommon attribute occurring in a left-hander is indicated in the case of a boy who was referred to me because he saw double. The natural inference was that he was developing squint and consequent diplopia, but investigation showed that when copying from the blackboard he doubled the letters and figures thus—229977 for 297; in fact, he might almost be described as having a "stammering" eye. He was the youngest of six, of whom all but the first two were left-handed until the age of seven or eight, when they became right-handed. All these left-handers have tended to write backwards, mirror fashion.

It happened that whilst I was engaged in investigating histories such as these, Dr. W. C. Rivers, tuberculosis officer of the Barnsley district, published an article in THE LANCET of Feb. 12th, 1921, in which he recorded cases where the whole family was exposed to infection, and only the left-handed members became tuberculous. He also noted that squint is two or three times as common in consumptives as in the general population. This widens the field of research almost illimitably. It would seem as if the squinter and left-hander had spent themselves under stresses the intensity of which cannot at present be estimated, and thereby rendered themselves more liable to infection, since it is impossible to conceive that left-handedness is itself a sign of deficient vitality. In other words, the connecting link between left-handedness, squint, and pulmonary tuberculosis will probably be found in the mental make-up of the individual rather than in his physical constitution.

This may seem a wild suggestion, yet a parallel may be found in the discussion on rheumatoid arthritis at the Royal Society of Medicine (Proceedings, November, 1923), when stress was laid upon the fact that the onset of the disease frequently coincided with some painful emotional experience. It is only fair to add, however, that so eminent an authority as Dr. Ernest Jones states in a verbal communication that after two years' psycho-analytical investigation of left-handedness he was unable to find a psychological factor in its development.

Conclusion.

The moral of the story seems to be two-fold: first, that these conditions, hitherto regarded as separate and unrelated, appear to be determined by defects in the personality as a whole, and secondly, that the emotional difficulties of the child in meeting social demands have an importance which has till now been hidden from all save the psycho-analyst.

PROBLEMS IN CONNEXION WITH THE DEBILITATED CHILD.

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PROBLEMS in connexion with the debilitated states of childhood are continually being forced on the notice of those engaged in the care and treatment of sick children. A large proportion of the cases attending a children's out-patient department is made up of debilitated children with no gross physical signs. Whilst the reasons for their visits to the doctor vary, and whilst the children show differences in their histories and symptoms, yet analysis demonstrates the great frequency of certain main characteristics, and leads one to believe that there are important factors at work in the production of these debilitated states that are common to the majority of the cases. The importance of the recognition of these factors cannot be over-estimated, seeing the large amount of defective health found amongst children of school age, and the great possibility that from this arise certain more clearly defined conditions, of which rheumatism, chronic nervousness with its numerous manifestations, and tuberculosis may be mentioned as the more important.

Analysis of Histories, Symptoms, and Physical Abnormalities of Debilitated Children.

An examination of the histories of these children demonstrates the frequency of certain main symptoms. In the majority there is a history of wasting or refusal to gain weight, the development of an anæmic appearance, listless attacks, complaints of feeling the cold and being easily tired, indefinite pains about the limbs, and in some cases a history of "faints," giddiness, and pallor. Chronic digestive disorder is suggested by the frequent history of lost or capricious appetite, indefinite abdominal pain, chronic constipation, bilious attacks, and mucus and thread worms in the stools. A large proportion of these children are described as being nervous, timid, excitable, fidgety, and restless; and bed-wetting, nocturnal restlessness, night terrors, and the development of certain habits of movement are complained of in some of the cases. The actual combination of symptoms varies from case to case; it is, however, remarkable how frequently refusal to gain weight, loss of appetite, constipation, and nervousness occur together.

Clinical examination likewise reveals the frequency with which certain physical abnormalities are found. Most of the children are under weight and in poor physical health. They are pale and sallow, some have dark rings under the eyes, and occasionally the skin pigment is increased. There is a general want of tone in all the systems, but specially is this true of the muscular system and of the mucous surfaces. In the upright position there is an exaggeration of the natural curves of the body. Lordosis may be marked, and there is compensatory stooping of the shoulders with winging of the scapulæ. The abdomen is pushed forward with an appearance of enlargement when viewed from the front. In a considerable number of cases the abdomen actually is enlarged, often in striking contrast to the poorly covered chest wall. The abdominal fullness is due to two factors—namely, the toneless ness of the abdominal muscles, and the atonic distension of the bowel within. In many cases there is evidence of an unhealthy naso-pharynx, with or without enlargement of the tonsils and adenoid tissue. The deep sets of glands in the posterior triangles of the neck are enlarged and "shotty," and the glands in the axillæ, and to a less extent in the groins, are more palpable than those of the healthy child. There appears to be a generalised hyperplasia of the lymphatic glands, those, however, of the neck being specially prominent. A proportion

of the cases have quick irritable hearts, and the apex beat in a minority of the children is found to be outside the nipple line. There is often a short, frequent cough, occurring specially at night, and catarrhal sounds are not infrequently found in the chest. Timidity, restlessness, and occasionally habit spasm are noticed during the examination. As in symptoms, so in physical abnormalities, the combination varies from case to case, although deficient weight, toneless muscle, enlarged glands, and nervous unrest are found to occur together with monotonous frequency.

Possible Ætiological Factors in Production of Debilitated States.

Can the child's debility be explained by its environment? The fact that most of these cases are of the hospital class suggests at once that we are dealing with a condition engendered by defective hygienic surroundings; but that the environment is rather an intensifying than the chief factor is proved by the fact that typical examples are found amongst children of well-to-do parents living under the best conditions. If it can be shown that the child's diet is an important factor in the production of the debilitated state, then it is easily understood that the hospital child is more likely to suffer than the child of more fortunate parents.

It would appear to me that there are two chief causes at work, the one nutritional and the other toxic. The general tonelessness of the child and the relaxed mucous surfaces suggest at once a deficient nutrition of the tissue cell. That this is not due to insufficient food is proved by the inability of the parent to fatten the child by increasing its food, and the child's refusal to gain weight even when the appetite is excessive and food is taken freely. An increase in the daily quantity of milk is usually unsuccessful unless the child has been deliberately underfed, a condition of affairs which in my experience is quite exceptional. In the majority of hospital cases the parent is only too willing to give as much food, although unsuitable, as the child will take. The difficulty is that it so frequently has no appetite. I would suggest that the tissue cell defect is due to the cell being supplied over a long period of time with nutriment insufficient in some essential constituent or constituents, or a diet ill-balanced in its constituents, and later there arise from this a reduction and impairment in the secretory and absorptive powers of the bowel, due partly to the general tonelessness in which it also partakes and partly to a chronic catarrhal state set up by the prolonged unsuitability of the diet in the direction of gross relative excess in starches and sugar.

After the weaning period the majority of children are given a diet which, while sufficient in total calories, is overweighted with carbohydrate. The diet either contains too little animal protein and fat, or the relative excess of carbohydrate produces effects which render the other parts of the diet less useful. The diet of the present-day child, and specially the child of the hospital class, largely consists of bread, rusk, biscuit, potato, rice, sago, and other cereal, together with a quantity of sugar far in excess of its needs. The eating of sweets adds still more to the carbohydrate of the diet. With such a diet over a period of months or years, the tissue cell is bound to suffer, and it is to this that I would suggest a good deal of the child's tonelessness is due.

Many of the symptoms are difficult to explain except on the basis of a toxæmia. The headaches, the indefinite pains about the limbs, the colour of the skin, the listless attacks, the nervous instability and unrest, and the extensive glandular hyperplasia are all in favour of a prolonged toxic irritation. There are three places from which a toxin is likely to be absorbed—the bowel, the throat, and the urinary tract. In a considerable number of cases the naso-pharynx is unhealthy in the sense that the mucous membrane is relaxed, chronically inflamed, or the tonsils and adenoid tissue enlarged. As Dr. Lapage[1] has pointed out, hypertrophy of the tonsils and adenoid tissue need not necessarily be present when the naso-pharynx is unhealthy. The frequency with which the posterior cervical glands are enlarged suggests chronic absorption from the throat, although the increased palpability of the axillary glands tends to show that the toxic irritation of the lymphatic system is more generalised. Be this as it may, there can be no doubt that the throat is frequently a source of added toxæmia, specially in those cases with marked nervous unrest, and also, I think, in the cases with quick irritable hearts, to which Dr. Lapage has previously drawn attention.

In the care and treatment of these debilitated children, one is forced to the conclusion that most, if not all, are suffering from a persistently impaired digestion, due partly to the tissue cell defect already mentioned, but more especially to a chronic dyspepsia of the nature of a chronic mucous catarrh. In a good many cases there is clear evidence of this—the symptoms and the condition of the stools point to it. In a considerable minority there appears to be no direct evidence of dyspepsia, although there is frequently a history of prolonged constipation. Parents do not usually see their children's stools after infancy, and are willing to believe the child's bowel is working normally if on the child's evidence it is moved once daily. Such cases I have frequently had under observation in the ward, and have found that by washing the stool through muslin considerable quantities of mucus are present. It is not easy to define the varying characteristics of normal stools of children over the age of infancy, but I would claim that the presence of much undigested food, masses of jelly, and visible liquid mucus intimately mixed with the stool are abnormal and evidence of a chronic catarrhal state of the bowel. Severe examples of this condition are, of course, instances of the mucous disease described by the late Dr. Eustace Smith.[2] The great frequency with which bowel disturbance and constipation are found appears strongly to favour the intestinal tract as an important and probably the most frequent source of toxic absorption, and the results of treatment support this supposition.

Probable Sequence of Events in Production of Debilitated State.

As has already been suggested, there is probably a gradual bringing about of a general tissue cell defect by a prolonged inefficiency of the diet, and the mucous surfaces and glands soon lose tone and resistive power. Infections are with difficulty resisted and organisms and their toxins reach the lymphatic glands. I strongly support the view that the fundamental cause of the unhealthy throat and the tonsillar and adenoid hypertrophy is dietetic, the local resistance being lowered in the way indicated. The effects of infection and toxic absorption are added to the child's symptoms; but here again I would emphasise the belief that the main source of toxic absorption is in the bowel. The child's debility is still further increased by impaired digestion, due to the catarrhal state of the bowel, its toneless condition, and the frequency of intestinal stasis. Vicious circles are thus formed and the power of resisting toxins is greatly lowered.

Relationship between the Debilitated State and Tuberculosis.

In discussing the debilitated child the question of tubercle cannot be ignored. The wasting and the frequency of cough and catarrhal signs in the chest suggest to the parents, and sometimes to the doctor, the possibility of tubercle. Many of these cases are said to be infected with tubercle, to be suffering with tubercle, or are labelled as children with a pre-tubercular condition. The evidence is extremely unconvincing, and from experience in dealing with these children I am strongly of opinion that the large majority are certainly not suffering with tuberculosis.

[1] Brit. Med. Jour., July 2nd, 1921.

[2] The Wasting Diseases of Infancy and Childhood, 1870.

I would insist that tubercle, sufficient of itself to cause wasting, must be extensive, and its toxin must reach the tissue cell in considerable amount. If the tubercle is extensive enough to produce wasting at this age-period, the chances of recovery are poor, and the clinical signs of its existence should be present. That a considerable proportion of these children—about 60 per cent. of my own cases—give a positive tuberculin reaction I agree, and that a minority of the cases actually have local tubercular lesions of some group of glands I do not deny, but that the debility and health defect are due to tuberculosis in a large proportion of the cases I do not believe. To my mind, the tubercular lesion, if present, is more likely the result of the health defect than the cause of it. With reference to the incidence of tubercular lesions at this age-period, the following figures obtained from the post-mortem notes at the Leeds General Infirmary are of interest. During a period of 10 years, 563 children between the ages 5 and 15 were examined. 185 (32·8 per cent.) had tubercular lesions; excluding the cases where death had been directly due to tubercle, 86 (18·6 per cent.) had localised tubercular lesions, and of a series of 103 cases where death had been caused by accidents, 14 (13·5 per cent.) had local lesions.

In a considerable number of the cases the lesion merely consisted of one or two old calcified glands, and these figures are given to combat the statement that large numbers of school-children are suffering with tuberculosis or are harbouring local tubercular lesions.

It is, of course, important to be able to say whether tubercle is or is not present, and whether it is located in the mediastinal or abdominal glands, but clinical signs and tests are consistently unsatisfactory and a definite answer is often almost impossible. The important fact is to realise that the child's debility is due in the large majority of cases to factors not related to tubercle, and to treat accordingly.

Relationship of the Debilitated State with Nervous Instability.

Nervous affections are common amongst all classes of children, but specially is nervous instability and unrest found amongst debilitated children. The modern tendency appears to be to find explanation for nervous manifestations in mental processes, and to emphasise very forcibly the primary importance of the psychological factors. One is continually being forced to the conclusion that the majority of nervous children present clinical features that are impossible to explain by looking at the case from the psychological standpoint; and, in fact, it appears to me to be far easier to explain the nervous unrest and abnormal mental states as being in most cases secondary to physical ill-health.

In the histories of debilitated children evidence of nervousness in one way or another is consistently found. Timidity, fidgety states, habit spasm, nocturnal enuresis, night terrors, and peculiar likes and dislikes occur with considerable frequency, and can be explained by a combination of the nutritional defect, in which the nerve tissue is bound to partake, and the toxic factor, which produces a continuous irritation of the nerve cell. In the care and treatment of the child with inherited nervous instability the psychological factors in the production of nervous disorder are of first importance and cannot be neglected, nor can their importance be underrated in the treatment of the far larger number of nervous children belonging to the toxic debilitated class; but it has been my experience again and again to find that to under-estimate the meaning and importance of the physical abnormalities of this larger class is to miss the shortest way that will lead to a return to mental health.

Relationship of Rheumatic Affections of Childhood to the Debilitated State.

Important evidence in favour of a toxic factor as an explanation of many of the physical and nervous abnormalities of the debilitated child is provided by the relationship between the rheumatic and the debilitated state. The relationship between nervous disorders and chronic intestinal dyspepsia, on the one hand, and nervous troubles and rheumatism, on the other, has been stressed in the past. The nervous manifestations of both groups are practically identical. An examination of the histories of 100 consecutive cases of frank rheumatism and rheumatic heart disease in children showed in 82 of the cases definite evidence of ill-health preceding the first manifestation of rheumatism, and an analysis of symptoms of the disturbed health demonstrated the great frequency of wasting or refusal to gain weight, loss of appetite, constipation, anæmia, nervousness, headache, indefinite limb pains, tired feeling, and chronic cough. In 46 of the cases certain evidence of bowel catarrh previous to the first rheumatic attack was forthcoming, in 14 cases there was a long history of lost appetite and constipation, while in a further 12 cases evidence of bowel catarrh was found by an examination of the stools at the time of the active rheumatism. In 58 cases, therefore, certain evidence of bowel catarrh was obtainable, and if loss of appetite with constipation be accepted as evidence of chronic dyspepsia, then in 72 per cent. of the cases it was proved to be present, either before the first attack of frank rheumatism or at the time the child was under treatment for the rheumatism. The pre-rheumatic histories of 65 of the cases gave evidence of chronic nervous unrest. In only 10 cases was there a history of "sore-throat" preceding the first attack of rheumatism, although 37 of the children had enlarged tonsils at the time of examination and 15 of the cases had had their tonsils and adenoids removed at some previous date.

The following is a detailed analysis of the symptoms and abnormalities (other than those of the rheumatic infection) of 100 cases of rheumatism, and in order to compare the symptoms and abnormalities of the debilitated class an analysis of 100 cases, not specially chosen, belonging to this class is also given. It will be noticed that the figures for rheumatic cases are generally lower than those for the other class. This is partly due to the fact that in the earlier cases information as to many of the symptoms and abnormalities was not obtained, as neither the possible importance of the child's history during the years preceding the rheumatism, nor the likely relationship between the debilitated and the rheumatic child was then realised.

Comparative Analysis of (A) 100 Rheumatic Cases and (B) 100 Debilitated Cases.

Symptoms and abnormalities.	No. of times occurring amongst— (A)	(B)	Symptoms and abnormalities.	No. of times occurring amongst— (A)	(B)
"Wasting or not getting on" ..	36	40	Loss of appetite ..	45	59
Definitely under weight	45	54	Excessive appetite	11	8
Pallor	59	64	Abdominal pain ..	15	26
"Nervousness" ..	63	81	Constipation ..	46	47
Nocturnal enuresis	11	22	Loose stools ..	8	11
Night terrors ..	12	12	Mucus in stools ..	44	57
Habit spasm ..	5	13	Thread-worms ..	29	46
Limb pains	61	39	Catarrhal chest ..	13	15
"Always tired" ..	19	36	Dilated irritable heart	14	17
Listlessness	17	15	Palpable glands, neck, and axillæ	42	64
Headaches	17	21	Tonsils and adenoids ..	37	44
Bilious attacks ..	8	9			

By the term "frank rheumatism" is implied chorea, definite synovitis, with swelling of the joint, and rheumatic heart affection (permanent valvular lesion, pericarditis). The rheumatic manifestations were distributed as follows: Chorea alone, 31 cases; chorea and synovitis, 8; synovitis alone, 18; chorea and heart disease, 11; chorea, synovitis, and heart affection, 6; synovitis and heart affection, 21; heart lesion only, 5. The pre-rheumatic disturbed health of some 82 of these cases appears to differ in no way

from the manifestations of defective health found in the debilitated child, and in my opinion rheumatism is an infection developing in this type of child. It is of interest to mention that eight of the above rheumatic cases developed their first rheumatic attack during the time they were under treatment for chronic catarrh of the bowel, 4 cases; nervousness and habit spasm, 1; chronic constipation, loss of appetite, and nervous debility, 2; bilious attacks, nervousness, and wasting, 1.

Rheumatism in the child is an extremely insidious disease, and does not in the majority of cases behave at all like the usual type of infectious disorder. Its beginning is often difficult to define, relapses are common, it may smoulder for years, and occasionally the disease flares up dangerously and the child is placed in immediate jeopardy. A valvular lesion may develop without any preceding history of a frank rheumatic attack, as happened in five of my cases.

Since the research work of Poynton and Paine,[2] it has been accepted by all that rheumatism is due to an infection with an organism belonging to the streptococcal group of bacteria, although its exact type has still to be clearly defined, and such a conception of the ætiology of the disease fits in well with its clinical manifestations. It would seem as if the child harbours the rheumatic organism, which every now and then overcomes local resistance, and an attack of rheumatism occurs. Possibly at times only the toxin is at work, while at others the organism gains entrance to the tissues, or it may be that the pre-rheumatic disturbance in health is due to the toxin, and the rheumatism itself to the passage of the organism into the tissues.

The conception of the disease which I desire to put forward is that rheumatism is in most cases the result of a series of events which began some months or years earlier, and that the rheumatic stage has followed a stage of debilitated health during which a toxæmia has been in existence. "Growing pains" and fleeting indefinite pains about the limbs occur with great frequency amongst debilitated children, and can hardly be explained but by the influence of some toxic agent. The frequency with which a dilated irritable heart is found in the child with toxic debility and the acknowledged frequency with which the same type of heart is found in frank rheumatic infection may also be mentioned. It has always been held that the rheumatic toxin is specially liable to influence the cardiac muscle, apart altogether from any permanent affection, and I would suggest that the toxic rheumatic heart which rights itself after the rheumatic attack has come to an end is merely an exaggeration of the toxic irritable heart of some debilitated children.

Whether the rheumatic organism and its toxin enters the body via the naso-pharynx or the bowel must remain for the present undecided, although one would like to point out again that "tonsillitis" is by no means a very frequent accompaniment of rheumatism—at least it was not so in my series of cases—while, on the other hand, evidence of disturbed bowel occurs with great frequency both in the histories of debilitated children and in the pre-rheumatic history of the frankly rheumatic child. That the state of the bowel is the more important cause of debility is, in my experience, brought out by the results of treatment in this direction. Amongst my own cases the removal of tonsils and adenoids did not, in the majority of cases, produce any marked change, nor has the operation appeared to save some rheumatic cases from their rheumatism, for certainly 15 of these developed their rheumatism subsequent to the operation. On the other hand, treatment by strict dieting, persistent avoidance of constipation, and "bitter alkali rhubarb" mixtures produces in most cases a very marked improvement in a few months. I am in the habit of treating a debilitated child in this way even although I find no evidence of bowel catarrh, because the results are always strikingly better than those obtained by ordering extra milk, iron, cod-liver oil, &c., and lead me to believe that even in these cases the bowel is at fault, although there is no evidence of defect. From this it naturally follows that in the prophylaxis of rheumatism and a large amount of heart disease of young people, the control of the child's health—and particularly the provision of a well-balanced diet—during the years immediately following weaning are of the first importance.

[2] Researches on Rheumatism, 1913.

Summary.

Problems in connexion with the debilitated child are discussed. The histories and physical abnormalities of these children are examined, and the frequency with which the same type of sign and symptom occurs is pointed out. It is suggested that the signs and symptoms are due to two main factors, the one nutritional and the other toxic, the child's tonelessness being due to the former and many of the symptoms to the latter. The nutritional factor is said to be due to a long-standing dietetic defect, together with the results of a chronic intestinal dyspepsia, while the toxic factor is believed to be due to the absorption of toxins from the throat and bowel, emphasis, however, being placed on the latter as the probably more important source. It is suggested that the unhealthy throat is secondary to the general tissue cell defect brought by the nutritional factor.

The relationship of tuberculosis, nervous disorder, and rheumatism to the debilitated state is examined. That the debility of these children is in the large majority of cases not due to tubercle is insisted upon, although the possibility of strictly localised tuberculous infection in some group of glands cannot be altogether denied. It is believed that in cases in which such an infection exists that the infection is secondary to the preceding lowering of resistance and tone.

A plea is put forward that the nervousness and nervous disorders of these children is secondary to the nutritional defect of the nerve cell and its irritation by toxins. Evidence is given to show that the rheumatic infection of childhood is in most cases ingrafted upon a preceding defect in health, which on analysis proves to be similar to the defects in health shown by the debilitated child, and it is suggested that in the prophylaxis and control of the rheumatic diseases the child's health in its earliest years is of the first importance, and emphasis is again laid upon the great importance of a well-balanced diet and the avoidance of chronic intestinal dyspepsia.

THE PHOSPHATE RATIO IN MENTAL DISEASE.

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THE investigations which form the basis of the following notes were prompted by some significant results obtained during the application of Sellards's alkali retention test[1] to a series of acute confusional mental cases of probably toxic origin. The mental state of many of these patients bears a marked resemblance to that observed in diabetes and other conditions of which acidosis is a feature; and it was seen, after only a small number of tests had been made, that there was frequently an abnormal alkali retention in confusional cases. The difficulty of

[1] Sellards: Bulletin Johns Hopkins Hospital, 1912, xxiii., 289.

administering exact quantities of alkali and of collecting specimens of urine at fixed times rendered it necessary, when dealing with mental patients, to simplify the procedure as far as possible from the patients' point of view, and, consequently, Sellards's method eventually gave place to a simple phosphate ratio estimation, using a standard technique.

In a most excellent "Study in Diabetic Acidosis," Calvert, Mayrs, and Milroy [2] have shown that the phosphate ratio in the normal subject is measurably altered by 1 gramme of sodium bicarbonate, and that this alteration reaches its maximum about three hours after the ingestion of the alkali. The technique is simple, 10 c.cm. of urine are diluted with 40 c.cm. of distilled water. This is then titrated with N/10 NaOH, using phenolphthalein as indicator. A few drops of a solution of methyl orange are added, and the mixture is titrated with N/10 HCl. The quantity of N/10 NaOH required is called "A" and of N/10 HCl "B." The phosphate ration is $\frac{A}{B-A}$ and the result is expressed as a fraction of 10. At first considerable difficulty was experienced in judging the end-points of the titrations, but latterly two estimations were carried out simultaneously on the same sample of urine and the tints compared. This was found to simplify the matter greatly.

The investigation has not been confined to cases of the confusional type, but the test was later applied to all cases admitted, irrespective of their type. A very large number of cases of all forms of mental disease have now been examined, and the results arranged in two groups—those which react normally to a dose of alkali by a definite drop in the numerical phosphate ratio after three hours, and those in which the ratio is almost or quite unchanged. Many of these cases have been under observation for over a year after the index was taken, and their subsequent history has thrown much light on results which, at first, appeared contradictory and confusing.

Acute confusional cases which appear clinically to resemble acidosis conditions invariably show little change in the phosphate ratio after ingestion of the alkali, and repeated tests in any one case during the acute stage of the disease always give results of about the same numerical value. Several confused patients whose phosphate ratio dropped, as in the normal individual, proved from their subsequent history to be cases of paraphrenia, dementia præcox, or manic depressive insanity. There would appear from our results to be few, if any, exceptions to the statement that every pure case of toxic confusional insanity gives a positive "acidosis" reaction. These cases generally clear up rapidly and make a good recovery without showing any appreciable mental deterioration after convalescence.

There is no other definite mental condition in which an acidosis reaction is commonly found, but it is very often the accompaniment of excitement from whatever cause, and is almost invariably present in this condition. Pure manic-depressives do not, in our experience, appear to develop acidosis. We have found a stationary phosphate ratio fairly frequently in cases of general paralysis of the insane, but only late in the disease, and usually associated with excitement. The acidosis reaction does not appear to be a feature of dementia, and confused senile cases without an acidosis reaction have always, after observation, shown themselves to be cases of pure dementia.

Three main conclusions may be arrived at from an analysis of our results: (1) There is a definite type of confusional insanity which always shows the "acidosis reaction." This occurs at all ages, and the prognosis is usually good. (2) The numerical value of the phosphate ratio remains very constant for each case during the confused period. (3) An "acidosis reaction" is not uncommon in excited states, but this does not apply to manic-depressives.

The phosphate ratio may, therefore, prove to be a valuable aid to prognosis, and we venture to submit these preliminary results in the hope that others may take up the work and that in this way a large mass of data may be collected. Several methods of combating the acidosis as a therapeutic measure have been devised, but it is, as yet, too early to express any definite opinion as to their efficacy.

[2] Calvert, Mayrs, and T. H. Milroy: Journal of Pathology and Bacteriology, 1921, xxiv.

A CASE OF ENDOCARDITIS TREATED BY IMMUNO-TRANSFUSION

WITH APPARENT RECOVERY.

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IT is thought that a brief note on the following case will be of interest in view of the success of the treatment. The history is as follows:—

T. L., male, aged 37. He had pneumonia at 16 years, diphtheria at 20 years. In 1910, in Australia, he had an illness for which he was admitted to hospital. The symptoms were severe pains in the joints with general prostration, sweating, and fever. After three weeks in bed he was discharged. Almost immediately afterwards he again became ill with similar symptoms for two weeks. He was unable to get treatment at the time and states he took a considerable time to recover from the illness. In 1916 he joined the R.N.V.R. and served throughout the war, being able to carry out his duties perfectly. He was mostly in the Mediterranean area. During 1920, 1921, and 1922 he had several slight attacks of mild joint pains and slight fever. Each lasted about a week, but for all this period, except during these attacks, he was able to attend to business and to play games strenuously.

On Nov. 6th, 1923, he went to bed complaining of pains in the shoulders, wrists, and fingers; there was profuse sweating; the temperature was 102°F. He improved on treatment with salicylates and returned to work, though still feeling ill. On Dec. 20th he had to go to bed again. Sweating was again profuse. He had considerable fever, temperature rising to 102°–103° in the evening and dropping to almost normal in the morning. No abnormal physical signs had previously been noted, but there was now heard a reduplication of the first heart sound over the mitral area.

On Jan. 2nd, 1924, I saw the patient in consultation with Dr. B. B. Metcalfe, of Liskeard, Cornwall, to whom I am indebted for the clinical details and history and for permission to publish this note. A blood count showed leucocytes 6200 per c.mm., polymorphs 60 per cent., and lymphocytes 40 per cent. Agglutination reactions were done against the enteric and dysentery groups of organisms and also *M. melitensis* and *para-melitensis*, with negative results. A blood culture was sterile. The patient continued to have a high temperature. Rigors now occurred and he lost much weight. On Jan. 21st blood was again taken for culture and proved sterile. At this date numerous petechiæ were noted over the elbows, and later crops were seen over the arms and legs. His general condition was very bad. Frequent rigors occurred and the temperature was 103°–104° every evening. He was very weak. There was extreme pallor and some cyanosis, and he had wasted very considerably. The pulse was rapid and very feeble, and a soft murmur was noted following the first heart sound, and best heard over the mitral area.

Vaccine treatment in such desperate cases being so unsatisfactory, it was decided to try immuno-transfusion after the method described by Colebrook and Storer.[1] This first transfusion was given on Jan. 27th. Very briefly, the method is based on some observations of Sir Almroth Wright [2 3] and his co-workers, who

[1] Colebrook, L., and Storer, E. J.: THE LANCET, 1923, ii., 1341, 1394.

[2] Wright, Sir A.: Ibid., 1919, i., 489.

[3] Wright, Sir A., Colebrook, L., and Storer, E. J. Ibid., 1923, i., 365, 417, 473.

showed that it is possible to produce a rapid general immunisation of the blood of a normal person by the injection (staphylococcus or typhoid) of a stock vaccine. A considerable degree of immunity develops in a few hours, the time necessary for this depending on the route by which the injection is given.

Following the first transfusion the temperature fell slightly and sweating was less profuse, otherwise little change was noted. He himself, however, declared he felt much better and was most anxious to have the procedure repeated. On Jan. 31st he apparently had an infarct of the spleen which suddenly became enlarged and very tender. On Feb. 6th he was again transfused. As this was about to begin, a rigor started, but the transfusion was carried out. Immediately after, there was extreme collapse. The temperature fell from 103·2° to 96·4°; there were vomiting and incontinence of urine and fæces. Recovery was gradual. On recovery from this collapse the temperature did not rise above 100°. The colour improved and he stated he felt very much better. On the 18th he was transfused for the third time. Soon after a rigor started, but the transfusion was continued and this time no alarming collapse took place and recovery was rapid. A very marked improvement set in immediately. The temperature next day was normal and remained so for the next three weeks. He rapidly put on weight, the appetite greatly increased, and the colour became normal. During this period he was given small doses of stock streptococcal vaccine prepared from a streptococcus isolated from a case of endocarditis. Between March 13th and 24th the temperature rose slightly and was about 99° in the evenings. Nothing was noted to account for this, but there was much influenza about at the time. The temperature fell to normal again on March 26th and has remained so since.

At the present time (July) the patient is about and able to do his work, and feels quite well, though he cannot undertake any considerable exertion without some shortness of breath. There is some blurring of the first cardiac sound on exertion.

From a consideration of the history and symptoms of this case there is little doubt but that it was one of endocarditis. That apparently complete recovery followed immuno-transfusion is some evidence of the great value of this method of treatment in cases of septicæmia. The procedure and apparatus described by Colebrook and Storer for withdrawing blood from the donor, defibrinating it, and injecting it into the patient, were followed, and no difficulties were experienced. The method seems an ideal one. The only addition I have made is to have ready a spare sterilised rubber tube and needle, in case clotting occurs in the needle used for bleeding the donor. I think it would be advisable also to have at hand a spare sterilised glass tube to insert into the hole in the bung of the collecting bottle when changing over to inject the blood into the patient. Should this glass tube be rather a tight fit, a little extra pressure in forcing it in might easily break it. For this reason I always carry with me two spare sterile lengths of glass tubing.

MIDDLESEX HOSPITAL.—The report of this hospital for the year 1923 shows that the number of patients treated exceeded those of the previous year, but it is difficult to make accurate comparisons, seeing that owing to structural defects two wards had to be closed during the last six months dealt with by the report. The admissions to the hospital were 5577, and the average number of occupied beds was 318·17. The average number of days for which each patient was under treatment was 20·69, and the average cost of each in-patient per week was £3 18*s*. 10·84*d*. The new out-patient cases numbered 35,819, an increase of 1120 over the previous year, while the attendances amounted to 168,067, an increase of 22,612 compared with 1922. The average cost per out-patient attendance was 1*s*. 4·34*d*., compared with 1*s*. 5·03*d*. in 1922. The report of the Cancer Charity for the same period shows that the number of patients treated in the wards was 635—two cases remaining over from the previous year. This is an increase of 120 over the figures for 1922. The average daily bed occupancy was 86·17, almost identical with that for 1922, while the average length of stay for each patient was 49·52 days, a marked decrease compared with the preceding year, when the figure was 62·37. The average cost of each in-patient in the cancer wards per week was £4 9*s*. 3·41*d*., compared with £4 4*s*. 1·78*d*. in 1922. In the out-patient department 303 new cases were treated, an increase of 112 over the preceding year.

Reviews and Notices of Books.

HEALTH PROBLEMS OF THE EMPIRE.

Past, Present, and Future. By ANDREW BALFOUR, C.B., C.M.G., M.D.; and HENRY HAROLD SCOTT, M.D., M.R.C.P. Being Vol. V. of a Survey of the British Empire, in Twelve Volumes. General Editor, HUGH GUNN, M.A. London: W. Collins and Co., Ltd. 1924. Pp. 443. 16*s*.

SOME fifteen hundred years ago a gentleman of Gaul, by name Claudius Rutilius Namatianus, had occasion to leave Rome and take a journey to look after his estates in France, which had been raided by some Visgoths. About this journey he wrote a poem in which he apostrophised Rome thus:

> "Fecisti patriam diversis gentibus unam;
> Profuit invitis te dominante capi;
> Dumque offers victis proprii consortia juris,
> Urbem fecisti quod prius orbis erat."

Noble words, which may well be applied to the British Empire of our own day. But possession, as every one knows, implies responsibility, and it is responsibility for health and sanitation throughout an empire of many races and many climates with which this interesting volume deals.

Drs. Balfour and Scott are to be congratulated upon the way in which they have presented their subject, with a choice admixture of scientific precision and a romanticism which recalls Herodotus or even Marco Polo. Consider the following passage: "I found whole villages of 300 to 400 families completely wiped out, the houses having fallen in on the unburied dead, and the jungle having crept in within two months, obliterating whole settlements." Were it not for the word "jungle," this might be a description of England in 1348–49 during the Black Death, but as a fact, it is a note by a Government official in Central Africa during the influenza epidemic of 1918–19. This is one instance only of the health problems which confront the Government of the Empire. The control of influenza is rendered difficult owing to our ignorance of the cause, but in the case of another disease—namely, malaria—we know the cause, and consequently the disease is well under control. What this means is daily being illustrated throughout the Empire, but let anyone interested in the matter read the passage quoted from Sir Malcolm Watson's book, "Prevention of Malaria in the Federated Malay States," p. 151. The same kind of war is being waged all over the Empire, but it is a little humilating to find that the campaign against that insidious enemy, the hookworm, is chiefly financed by America under the Rockefeller Foundation, even though, as Drs. Balfour and Scott point out (p. 196), there is something very fine in "the older nation's being helped in this way by the younger, which sprang from it, but separated from it." But as a whole the Empire is waking up to its responsibilities both at home and abroad, and is well in touch with foreign countries through the Office Internationale d'Hygiène Publique, established at Paris under the Convention of Rome, 1907, and also through the Health Section of the League of Nations.

With regard to public health at home, the authors make a sensible suggestion on p. 382—namely, that the provision of rest-houses would be of incalculable benefit to the suffering poor. Anyone with experience of out-patient work or dispensary practice must be fully in agreement with them when they exclaim: "How often have we seen some wretched poverty-stricken creature come for examination and advice, wheezing with bronchitis or racked with lumbago! What use was a bottle of free medicine . . . . to such an unfortunate? He needed a comfortable lodging for a few days, warmth, decent food, and perhaps a pair of sound boots." Such, they continue, could not be given him, and he had to wend his weary way back to a miserable fireless room, because there is no hospital for such people, and they are not ill enough for the workhouse infirmary. The authors admit that

the provision of such rest-houses seems out of the question, and that even if they could be provided it would be better to improve housing conditions generally; but failing the latter improvement, the realisation of which is still a far cry, they are convinced of the benefit which such rest-houses could afford. In that way the Middle Ages were better off than we are to-day, for then the land was dotted with rest-houses—i.e., hospitals—that is, guest houses which received and cared for the poor and necessitous. To quote the statutes of the Hospital of St. John Baptist, Oxford, "that therein infirm people and strangers might receive remedy of their health and necessity." To-day, Watts' Charity at Rochester is almost the solitary instance remaining. We have noted one error for correction in a future edition: on p. 45, where, owing to a mistake in the position of "one of those damned dots," the mortality in the Walcheren expedition is given as 3469 per 1000 of strength instead of 346·9 per 1000.

If the other 11 volumes of the series are equal to the one before us, the work will be worthy of the Empire with which it deals.

LES FERMENTS DE LEUCOCYTES.

By NOEL FIESSINGER. Paris: Masson et Cie. 1923. Pp. 238. Fr.16.

THE object and aims of this book are set out in an interesting preface by Prof. A. Chauffard. Dr. Fiessinger was evidently greatly influenced by the works of Metchnikoff, and the whole volume is, in reality, a series of investigations based upon this worker's theories. The demonstrations of intracellular enzymes and other chemical functions are treated exhaustively, and the author also deals with the bearing of the leucocytes upon questions of immunity, while a chapter dealing with oxidase and peroxidase reactions is particularly useful. A number of illustrations are included, and a full bibliography adds greatly to the value of the work.

COMMON DISORDERS AND DISEASES OF CHILDREN.

Fourth edition. By G. F. STILL, M.D., F.R.C.P., Physician, King's College Hospital, and Hospital for Sick Children, Great Ormond-street. London: Humphrey Milford. 1924. Pp. 965. 25*s*.

IN the preface to the first edition of this work Dr. Still renounced any claim to have written a systematic text-book of children's diseases. Subsequent editions have gradually added to the completeness of the book, and the fourth edition, which now appears, may well be described as a text-book of a type particularly valuable both to students and practitioners, in which little space is devoted to the description of rare conditions, but which contains all the essentials of symptomatology and treatment of the common diseases met with in children. Four new chapters have been added, dealing with purpura, blood diseases, loss of weight in children, and headache and giddiness. Fairly numerous additions have been made throughout the book, and the opinion of so high an authority on the more controversial questions which have come into prominence recently will be of special interest to the reader. The chapters on infant feeding contain some new material. Dr. Still appears to have modified his view on whole-milk feeding, which he considers to be of occasional utility, though not the method of choice. He deprecates the introduction of the four-hourly feed. The ætiology of rickets is more fully discussed in this edition, but the author's conclusions have not materially altered; the preventive and curative effects of sunlight are admitted, but the predominant factor is dietetic. The classification and definitions adopted by the Mental Deficiency Act of 1913 have been inserted in the chapter on that subject. In the last chapter the section on the treatment of congenital syphilis has been re-written. The author gives a full account of the various methods and preparations which have come into use, but is inclined to reserve judgment on their comparative merits. The chapters dealing with nervous and psychic disorders, particularly that on insomnia, suffer somewhat from the absence of reference to encephalitis lethargica. It is to be hoped that a future edition may give the reader the benefit of Dr. Still's experience of this disease.

The four new chapters add considerably to the comprehensiveness of this valuable work, which will undoubtedly maintain its well-deserved popularity.

CARE OF INFANTS AND YOUNG CHILDREN IN HEALTH.

Third edition. By MILDRED M. BURGESS, M.D. Lond., Lecturer on Infant Care to the L.C.C. London: H. K. Lewis. 1924. Pp. 76. 2*s*.

WE welcome a third edition of this little book, written primarily for students of infant care classes, on the feeding and management of infants and small children. The author recognises the fact that infants fed on dried milk are prone to develop rickets, and regards modified cow's milk as the best substitute for the breast. Details of modification are carefully described and are eminently practical, and should enable all but a very small number of infants to be guarded from rickets and infections. The sections on diet, clothing, and nursery hygiene are full of common sense.

SOCIAL ASPECTS OF PSYCHO-ANALYSIS.

By ERNEST JONES, JAMES GLOVER, J. C. FLÜGEL, M. D. EDER, BARBARA LOW, and ELLA SHARPE. Edited by ERNEST JONES, M.D., President of the International Psycho-Analytical Association. London: Williams and Norgate. 1924. Pp. 240. 7*s*. 6*d*.

THIS book reproduces a series of lectures given to the Sociological Society by speakers who may be accepted as representing Freudian orthodoxy. The main principles are laid down in the first three chapters, and their application to politics, education, and vocation are then elaborated. As with all books on this subject, many readers will find difficulty in assimilating the views expressed. It is hard, for example, to believe that infantile coprophilic tendencies form the irrational element in some modern capitalists who have little personal satisfaction out of their possessions, but remain under the compulsion to collect; but the application of the Œdipus complex to elucidate political activities and beliefs may interest those who see in world politics a neurotic manifestation in which man does not know what he wants or why he acts as he does. We noted the acceptance (p. 211) of the current misuse of the phrase "psychological moment." The history of the phrase goes back to the siege of Paris, when Bismarck spoke of the material and the psychological moment of the bombardment—that is to say, its physical and moral *momentum*.

If psycho-analysis reveals the primary motives of human behaviour its application to sociology is useful and necessary. The book forms a coherent whole and gives the impression of being written by those who know the subject well enough to present it simply and without distortion.

COLOUR-VISION.

An Introduction to the Study of Colour-Vision. Second edition. By Sir JOHN HERBERT PARSONS, C.B.E., D.Sc., F.R.C.S., F.R.S., Ophthalmic Surgeon, University College Hospital; Surgeon, Royal London (Moorfields) Ophthalmic Hospital. Cambridge: University Press. 1924. Pp. 323. 25*s*.

THE appearance of this book, the second edition of what has already become a valued work of reference on the subject of colour-vision, will be welcomed by ophthalmologists, physicists, and physiologists alike. The scientific presentation of the subject-matter,

together with the full bibliography, have already made it essential to any worker in this still extremely controversial field.

In general arrangement the second edition does not differ from the first. As before, the book is divided into three parts: (1) The chief facts of normal colour-vision; (2) the chief facts of colour-blindness; and (3) the chief theories of colour-vision. The value of the second edition lies in the fact that the references have been brought completely up to date, and that all the important recent work on the subject has been incorporated. In particular, the inclusion of discussions on the later results of such scientists as Abney and Watson, Luckiesh, Pulfrich, and Ives may be mentioned. Additions naturally occur most frequently in Section I., and here many new curves and tables are found. Among others, the energy distribution curves of various illuminants, the work of Abney and Watson on threshold stimuli at the fovea, Luckiesh's method of study of the growth and decay of colour sensation by means of flicker, and Pulfrich's ingenious stereoscopic indicator for studying differences of brightness are well described. In the portion of the book devoted to theory there is little change, except for a more detailed discussion of Edridge-Green's views and the incorporation of Houston's vibratory theory.

ICARUS, OR THE FUTURE OF SCIENCE.

By BERTRAND RUSSELL. London: Kegan Paul, Trench, Trübner and Co. 1924. Pp. 64. 2*s.* 6*d.*

Mr. Haldane's "Dædalus" has roused a good many people, among them Mr. Russell, who here makes what is in some measure a reply to that bright *jeu d'esprit*, which, it will be remembered, imagines a prosperous future for human progress under the guidance of biological discovery. Mr. Russell puts on several belts as well as his braces, and draws a gloomy picture of the probable fate of men whom modern science has taught to fly. It is naturally less attractive and stimulating than the work of Mr. Haldane, who does not seem to care much what happens to his trousers so long as he gets forward. Pessimism always makes rather poor reading. Mr. Russell's main point is that the chief effect of science is to give men power to achieve their desires. He mistrusts man and doubts whether he will use his power wisely. In a few pages he covers a large field of great topics, and the treatment is necessarily brief and, indeed, does not amount to much more than a statement of the author's conclusions. The result will be disappointing to those who have been charmed and convinced by his more solid writing.

UROLOGY.

Modern Urology. Second edition. By many American Authors. Edited by HUGH CABOT, C.M.G., M.D., F.A.C.S., Dean and Professor of Surgery in the Medical School of the University of Michigan. Philadelphia and New York: Lea and Febiger. 1924. In two volumes. Pp. 828 and 744. $18.

THIS System of Urology, though written first only five years ago, has come to a second edition, partly because of its merits, but also because urology continues to make such progress that revision soon becomes a necessity. Certain changes are made in this edition, and to keep the size of the book within the same limits as before the historical sketch of genito-urinary surgery in America has been omitted. Two of the original contributors have died, and their work has been revised by others.

Hugh Cabot is to be congratulated on having collected together articles from so many pens, and at the same time produced a book which keeps the same high level throughout. There is some overlapping as in every System, and if space is urgently needed, as the preface suggests, there is plenty to be had by cutting duplicate descriptions. Of these the most prominent example is the perineal prostatectomy operation, which is described at great length by two authors, with numerous illustrations, most of which occur twice. But this is a small matter, and in no way detracts from the quality of the work. It is well written, very well illustrated, and has a bibliography at the end of each chapter. It should prove of great value to any surgeon who takes up urology as his special subject.

Kystoskopischer Atlas. Third edition. By ERICH WOSSIDLO. Berlin and Leipsic: Wilhelm Engelmann. 1924. With 43 coloured plates. Pp. 111. 35 gold marks.

THIS third edition has been slightly altered in the text and somewhat rearranged. The collection of cystoscopic drawings in colour is really very fine, and for these alone the book is a welcome possession. The appearance of another edition so shortly after the second is evidence of the success of this atlas.

JOURNALS.

BRAIN. Vol. XLVII., Part 1.—The Pathogenesis of Cerebral Diplegia, by James Collier. This presidential address to the Neurological Section of the Royal Society of Medicine was printed in THE LANCET of Nov. 24th, 1923. The thesis is maintained that true cerebral diplegia is the result of primary degeneration of the cerebral neurons. The causal agent is unknown except in certain rare cases of syphilitic infection.—On the Dissociation of Voluntary and Emotional Innervation in Facial Paresis of Central Origin, by G. H. Monrad-Krohn. A description of four cases showing acceleration and exaggeration of emotional movements of the face combined with voluntary paresis in the same distribution. This suggests that the emotional motor apparatus is distinct from the voluntary motor apparatus, and is normally subjected to a continuous inhibition by the latter. Further, the lenticular nucleus in its pallidal part probably contains the motor centre for emotional innervation.—The Pathological Anatomy of Disseminated Sclerosis, by C. P. Symonds. As the result of a thorough examination of a typical case which died during an acute exacerbation of the disease, the author is able to demonstrate the presence of perivascular infiltration with lymphocytes and plasma cells. He concludes that the disease is infective in origin, but he was unable to find spirochætes or other micro-organisms. The paper is well illustrated.—A Study of the Electromyograms of Voluntary Movement, by F. Golla. The muscular coördination taking place in voluntary movements was investigated by recording the muscle action-current and the muscle sound. It was found that in the coöperation between anatomically antagonistic muscles their time relations and the magnitude of their response is adjusted with an almost infinite variation to the different degrees of resistance that the voluntary movement may be called upon to overcome, or to the velocity with which it is performed. The effective mechanism of voluntary control appears to determine, in the first place, the nature, velocity, and force of any given voluntary movement, but plays no part in the determination of such modifications as may be necessary in the first instance to deal with the variations of the environment which may be encountered during the performance of the movement.—Electromyographic Studies of Experimental Convulsions, by Stanley Cobb. Thujone injections were used to produce convulsions in rabbits. The records obtained show that both the tonic and clonic parts of the fit are tetanic in character.—The Sequelæ of Encephalitis Lethargica, by A. G. Duncan. Of 136 consecutive cases 35 died; of the remainder, 83 were traced for at least 18 months after the onset of the disease. Evidence of mental impairment

or of organic disease of the nervous system was found in no less than nineteen-twentieths of the cases. Physical sequelæ are more common in adults, mental in children below the age of 10. A long interval between the acute stage and the appearance of further symptoms is associated with a serious and progressive sequela. Symptomatic paralysis agitans, usually progressive, occurs in more than one quarter of the cases. The prognosis must be very guarded even when complete recovery appears to have taken place.

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them.

XVIII.—MEDICAL EVIDENCE.

BY HUGH WOODS, M.D. DUB.,
GENERAL SECRETARY OF THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY, LTD.

"It is true—without any slips of prolixity, or crossing the plain high-way of talk."—*The Merchant of Venice*, Act III., Sc. 1.

Compulsory Evidence.

MEDICAL practitioners, whether they like it or not, are frequently required to give evidence in the law courts. If summoned as witnesses in criminal cases they must attend, and when subpœnaed to give evidence in civil cases they cannot safely absent themselves. Failure to attend in a criminal case might entail arrest and fine or imprisonment; and, in a civil case, damages might be recovered from the absentee for any loss arising from the lack of the evidence which he would have given if he had obeyed the subpœna. The only way to avoid the risk of being compelled to give evidence is to keep clear of being in a position to give evidence in a matter likely to be the subject of legal proceedings. The probability of being called as a witness is greatly increased if it is known what evidence would be given. This should be borne in mind when a request is made for a report on a case which may lead to litigation. Before a report is given a guarantee should be required that an adequate fee will be paid, not only for the report, but also for giving evidence or attending to give evidence in the event of legal proceedings. After a report has been given the vantage ground for negotiating for a fee above the minimum amount legally prescribed has been lost. In the event of a patient requiring the evidence of the medical attendant to establish a proper claim it would not be fair to raise any unreasonable difficulty, but in the large number of cases where medical practitioners are not bound in duty to give evidence they will be wise to take precaution to enable them to do as they choose in regard to giving evidence, and to safeguard their position in the matter of proper remuneration if they are willing to be witnesses.

Allowances to Practising Members of the Medical Profession for Attending to Give Professional Evidence in Criminal Prosecutions.

For attending to give evidence in the town or place where the witness resides or practises—

If the witness attends to give evidence in one case only, not more than one and a half guineas per diem.

If the witness gives evidence on the same day in two or more separate and distinct cases, not more than three guineas.

For attending to give evidence elsewhere than in any town or place where the witness resides or practises, whether in one or more cases, not more than three guineas per diem. "Town" means municipal borough or urban district; and "place" means within a radius of three miles from the court at which the witness attends to give evidence.

There may be allowed to expert witnesses such allowances for attending to give expert evidence as the court may consider reasonable, including, where necessary, an allowance for qualifying to give evidence.

No full day allowance shall be paid unless the witness is necessarily detained away from his home or place of business or employment for at least four hours for the purpose of giving evidence. If the time is less than four hours the witness shall receive not more than one-half of the allowances which he would have received if he had been detained for the full day.

For attending court from a distance of over two miles there may be allowed:—

To witnesses travelling by railway or other public conveyance, the fare actually paid.

Railway fares, except for special reasons allowed by the court, shall be third class; and if return tickets are available, only return rates are allowed. Where no railway or other public conveyance is available, and one or more witnesses necessarily travel by a hired vehicle, the sum actually paid for the hire of such vehicle, not exceeding 1*s.* 6*d.* a mile each way, is allowed, provided that, where two or more witnesses attend from the same place, the total allowance shall not exceed 1*s.* 6*d.* a mile each way unless the court is satisfied that it was reasonably necessary to hire more than one vehicle.

To each witness travelling on foot, or by a private conveyance, where no railway or other public conveyance is available, a sum not to exceed 3*d.* a mile each way is allowed.

Witness Fees in the High Court.

In the High Court the witness fees payable to a non-expert medical witness—that is, a witness of fact—are from one to three guineas, and in some cases the Taxing Master will allow five guineas. A witness attending the High Court is entitled to receive a sufficient amount of conduct money to take him to the court, and if there is any doubt in his mind as to the amount, or as to provision for his witness fees, he can raise the matter in court prior to his giving evidence. When a medical practitioner is called solely as an expert the amount of his fee is a matter of private arrangement between him and the persons calling him. He is entitled to a fee for qualifying (i.e., studying the subject so as to be competent to give expert opinions on questions arising) and for attendance, and he can refuse to give any evidence unless adequate provision has been made for his fees, or he can demand their payment before giving any evidence at all.

Non-Expert Evidence.

Non-expert evidence from a medical man is a bare statement of the facts found by him, and if called as a non-expert witness he is not bound to give his opinion and deductions based on the facts which were present to him. It is difficult for a medical man to draw a hard-and-fast line, and he should, of course, in ordinary cases, where he is called as a witness of fact, be as helpful to the court as he can in the evidence he gives.

The Importance of Being Understood.

A medical witness should carefully avoid conveying to judge and jury the impression that he thinks they know but little of medical matters; but at the same time he should not reckon on their having any sound knowledge on medical subjects. They may not be as ignorant as the coroner's jury which gave a verdict that a man had died from a stone in the kidney swallowed by him when lying in a state of intoxication on a gravel path, but it is best to guard against possibilities of profound ignorance or curiously absurd notions. Even if a medical witness is able to avoid technical terms, and to give his evidence clearly and accurately in ordinary language, there is still grave danger of serious misconception on the

part of people whose medical knowledge is chiefly derived from quack advertisements, or other sources not more trustworthy than them. Where it is possible, a medical witness should provide himself with specimens, models, or pictures, which will make clear many points which no words would ever make intelligible. The details of a fracture of the wrist will be much better understood, for instance, if the medical witness can explain them with the help of articulated bones, and preferably ones showing a fracture similar to that which is under discussion.

Answering—Yes or No.

The rule that answers to questions should be direct and definite applies to medical evidence, but the difficulty of adhering to that rule is often very great for medical witnesses. Questions are often put—sometimes perhaps intentionally—direct answers to which, without qualification, might convey a very wrong impression. Nevertheless, there is no worse witness than one who answers questions hesitatingly and indefinitely, and then delivers a short lecture with a view to explaining his meaning. This kind of evidence gives excellent opportunities for cross-examination, and often ends in serious discomfiture of the witness with consequent damage to the case which his evidence should have supported. There are many questions which a witness cannot rightly answer by a simple Yes or No. If a witness is asked whether the habit of stating as facts things which are obviously untrue indicates the existence of insane delusions, he ought certainly not to answer simply Yes or No. The answer should be that it may or may not, and the witness can then wait for further questions and continue to answer them as directly and simply as possible. If instead of this he attempts to set out the methods by which distinction can be made between habitual lying and the truthful expression of unfounded imaginations he will run great risk of failure, involving him in ridicule and discrediting him as a witness.

Expert Witnesses.

It is a common reproach to medical as well as other expert evidence that it can be obtained in support of almost any proposition or theory which it is desired to establish, and it happens too often that expert witnesses of good standing confidently express diametrically opposite opinions on a subject which is undergoing legal investigation. The result of this may be the complete cancelling out of the expert evidence, leaving the matter quite undecided; or the question—which expert is right, and which wrong—may be decided by persons not at all competent to decide where doctors disagree. It is not much to be wondered at that experts support the point of view of those who call them as witnesses, because it is usual, before calling an expert witness to give evidence in a case, to ascertain what his opinion will be on the more material points. If his views are not favourable to the case of those proposing to call him as a witness, he is not asked to give evidence, and search is made for an expert whose evidence is likely to be helpful. Consequently, if any suitable expert can be found who is prepared to give evidence such as is desired he is likely to be summoned as a witness. Without such previous selection there would be less conflict of opinion.

Should Medical Witnesses Confer Together?

There can be no doubt that the medical evidence in many cases would be more consistent and more satisfactory if the medical witnesses conferred together before giving evidence, and not infrequently, in cases depending chiefly on the medical evidence, such conference would lead to a settlement without the trouble and expense of a trial. In a case, for instance, in which it was contended on the one side, and denied on the other, that serious consequences were due to injury of a nerve in the course of an operation, a consultation of the medical witnesses, with further investigation of the case, led to their arriving at the same conclusion, and obviated the necessity for further legal proceedings in the matter. When there is a real desire or willingness that a dispute should be decided justly on its actual merits there seems to be no sound objection to a conference of proposed medical witnesses beforehand, whether such witnesses will be called upon to give expert evidence or merely to give evidence of fact as to the condition of a person determined by medical examination.

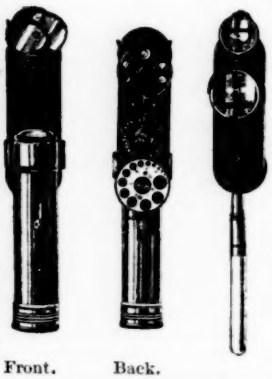
Medical Evidence should be without Bias.

A medical witness is usually called to give evidence on behalf of one side in a law case and not both, and he is often a witness for one of his own patients. This should not cause him to feel or show any desire to favour the side for which he is a witness at the expense of the other side. He should, of course, do his best to give his unbiased evidence fully and satisfactorily on behalf of those who, more or less, may depend on his evidence for the success of their case, and he has no duty towards the other side beyond that of honesty and fair dealing. Consideration of the interests of those for whom he is giving evidence should, of itself, prevent his showing any signs of bias while giving evidence. A medical witness should especially be on his guard in this respect when being cross-examined. The knowledge that cross-examination is intended to detract from the force of evidence given, and perhaps to discredit the witness himself, often leads that witness—sometimes unconsciously—to assume a hostile demeanour which serves only to assist the cross-examiner in his task. While, of course, guarding against snares, which are not likely to be laid for him except in the cross-examination, the witness should answer the cross-examiner with the same readiness and courtesy as when giving his answers to those conducting the case for the side on which he is giving evidence.

New Inventions.

A NEW OPHTHALMOSCOPE ATTACHMENT.

THE accompanying diagram represents a simple method of converting and re-converting at will, in less than one minute, the ordinary Standard Morton ophthalmoscope into the well-known "Fundus Aurorascope" (the instrument by which a novice can see at the bedside every detail of the fundus oculi). A front and back view is illustrated. The conversion which has been designed by me is very simple. The retinoscopic and small mirrors of the Morton ophthalmoscope are detachable by a slide movement and in its place a concave mirror set at an angle of 45° is fixed. This piece is now attached by a grooved socket on the small pocket-torch handle containing a three-volt battery and a switch. This instrument will be found invaluable at the bedside as it obviates the skill which is necessary for a fundus examination with the ordinary Standard Morton, difficulties which, to other than a specialist, require considerable practice.



Front. Back.

The instrument has been made for me by the Aurorascope Co., Ltd., Fulwood House, Fulwood-place, Holborn, W.C. 1.

HENRY DUTCH, M.R.C.S.

THE LANCET.

LONDON: SATURDAY, AUGUST 2, 1924.

THE TEACHING OF HEALTH IN SCHOOLS.

AT a meeting of the Headmasters' Conference held in Winchester last year it was agreed that systematic teaching of hygiene ought to form part of the instruction of every boy during his time at school, and the Conference authorised the publication of a syllabus[1] which has been drawn up by medical experts for the benefit, in the first instance, of the members of the Conference this year. It is a guide for those who have to teach the theory and practice of healthy living to school-children of various ages and both sexes; and covering as it does a wide range, it is necessarily framed in general terms. In successive chapters the organisation of our public health service, housing, water, sewage, general biology and physiology, infectious diseases, exercise, fresh air, cleanliness, food, drink, and heredity are dealt with. The pamphlet concludes with a long list of books likely to prove useful to the teacher.

Education finds any justification it may need in the progressively increasing intelligence of successive generations. The boys and girls of to-day are, without doubt, quicker at learning than were their parallels of 20 and 40 years ago, and the reason of this is the greater independence which they enjoy, and, particularly, the better informed milieu in which they generally find themselves. But it is difficult to believe that they can possibly absorb a course such as is outlined in this syllabus, and we trust that headmasters and headmistresses will hesitate before suggesting that a valuable pamphlet should be used in any other way than as an indication to their staffs that practical health lessons can be conveyed in the course of the ordinary curriculum by teachers who are adequately informed. Pupils instructed directly from such a book as this would have a superficial, scrappy acquaintance with things they did not understand, and to import this serious disease of smattering, which is allowed by America to have affected their system of education, into seminaries of sound learning and religious education (such as still exist in this country) would be, we believe, a profound mistake from both the educational and hygienic points of view. No one questions the desirability of every young person having an elementary knowledge of human anatomy and physiology, of why one eats and what are useful foods, of what urine and fæces represent, of why it is well to wash, of the possibility of contracting some diseases by going too near other people who have them—and so forth. But to import into the school curriculum the pithy summary of the pathology of tuberculosis—admirable in itself—or the consideration of the results of mating allelomorphic pairs is verging on the absurd. We wonder, too, who is to teach up to this standard. We do not lose sight of the fact that the knowledge is to be imparted through the medium of the instructor, and after proper transmutation, but we wonder how many of our public schools, such as were represented at the Conference, possess the necessary staffs and equipment. The prefatory paragraphs of the syllabus rightly say that the teacher should be saturated with his subject. No good teaching, even of the most elementary kind, can, of course, be done otherwise, but a sound knowledge of the topics covered in the syllabus would imply the services of the experienced staff of a school of hygiene with a liberal idea of the confines of the subjects; such knowledge will scarcely be found among the staff of any ordinary—or, indeed, extraordinary—public school.

The document is framed on an impracticable scale. It starts with the proposition that "the science and art of healthy living . . . . is the most vital and human subject of the whole curriculum," which, if words are used in their common meanings, is either a patent extravagance or a sadly materialistic interpretation of the purpose of education. And if the scheme as outlined is to be carried through, it can only be by one of those illusory royal roads to learning which end in no sound permanent knowledge. The methods of healthy living, if they are to be of real use in later life, must be ground in with a thoroughness which makes them second nature, practised without deliberate thought, as the multiplication table is followed, and as the principle of asepsis is ground into medical students and surgical nurses. And in respect of health doctrines all that can possibly be imparted to the bulk of a school population would be the barest elements. Which is the more to be regretted, because the teaching of hygiene is a really important thing, and the ideal that all young citizens should start on the right road in the subject is one which is worth a great deal of trouble to achieve. The syllabus, we fear, would do little more than confirm the lay educationalist in the view, which he very likely holds already, that doctors are impracticable faddists.

[1] The Practice of Health. Winchester: Warren and Son. 1924. Pp. 60. 1s.

SQUINT, LEFT-HANDEDNESS AND STAMMER.

A RELATION has long been suspected between stammer and left-handedness, or mancinism, and on another page of this issue Dr. W. S. INMAN suggests that, with the addition of squint, they are alternative expressions of emotional states. It will be admitted that, in some people at least, stammer expresses emotion, and its appearance on specific occasions—in the presence of superiors, for example—must be regarded as a reaction of the whole personality. The patient himself is producing it, whether by contracting his diaphragm, closing his glottis, tightening his lips, or by other actions in themselves physiologically normal and capable of imitation by the non-stammerer. *Why* he does it is a question that our present knowledge allows us to answer only in terms of mental processes. But the case of mancinism seems very different, and the suggestion that it also may be of emotional significance will be new to most of us.

A letter which appears in our correspondence columns offers the generally accepted physiological explanation of mancinism and extends it to account for the onset of stammer after the successful restraint of the left-handed activities. The experiment reported by Mr. HUGH GORDON, and detailed by Dr. INMAN in his communication, seems also to support the view that, since speech depends upon the integrity of the left side of the brain in right-handed people and upon that of the right side in left-handers, the transfer of dominance from one hand to the other somehow involves the speech area of the cortex and causes a stammer. But a pure left-hander is rare, and, as Dr. INMAN shows, there is a notable specificity in left-handed activities. If these depend upon physiological causes, they demand a selective subtlety on the part of nerve cells which passes comprehension.

In many people, for example, the only left-handed activity appears in dealing cards, and from such an isolated action mancinism ranges in various forms through ambidexterity up to a complete inability to use the right hand for its ordinarily specialised functions. A definition, or even a standard, of mancinism is difficult to establish. The fact is sometimes overlooked that an action habitually performed by the left hand is difficult for the right, and the violinist who reversed the usual position of his instrument would find fingering with his right hand to be as difficult as bowing with his left. An interesting speculation is whether, if this reversed position had been conventionally correct, the left-hander would insist upon playing in what is now the orthodox one. This speculation arises from Dr. INMAN'S assumption that mancinism is a reaction of the whole personality, that it is psychologically determined and not due to an accidental disturbance in the localisation of nerve function. That it is the mark of a determined disposition finds scriptural confirmation, for the children of BENJAMIN valued highly the left-handed members of their fighting team, and the story of EHUD—"a man left-handed"—illustrates a fortunately rare degree of self-sufficiency and determination. The re-education of a left-hander in the ways of the herd involves the imposition upon him of the will of others, and we may find an explanation of the replacement of mancinism by a stammer in the view that the one is a protest that succeeds, whilst the other is an expostulation at its failure; the association of both in the same family may indicate temperamental modes of reacting to the same parental stimulus. We may note that psycho-analysts claim to trace stammer to the sense of guilt or fear arising from the Œdipus complex and to cure it by analysis, and many war stammers were removed by a superficial exploration of recent emotional episodes.

Unlike stammer or mancinism, squint is not easily imitated, but it *can* be imitated, and we must admit that it may be a personality reaction—that the child is doing it. BACON noted that some can squint at will, and anticipated Dr. INMAN when he wrote that "the cast of an eye is a gesture of aversion." Ophthalmologists as a whole are satisfied with the current explanation of squint, though the hypothetical "fusion centre" goes beyond what is demonstrable. It is difficult to conceive that the child can produce the symptom, even as an unconscious reaction; but the suggestion of a predominant emotional factor opens up such possibilities, not merely of clinical benefits but also of wider understanding of general principles, that Dr. INMAN'S evidence should be closely examined. His attempt to establish the relationship of the three conditions should be capable of statistical examination, but it is obvious that controls on a large scale are necessary. We must count the misses as well as the hits, a precaution too often not observed by that increasingly numerous body of writers who found their judgments on the comparison of figures. The psychologist may see something of value in intuitional judgments concerning these conditions. The parent or teacher tends to regard them as volitional and demands that the culprit should cease to offend, and this attitude, however bad its results, may depend upon a dim perception of the truth according to Dr. INMAN. In regard to stammer his views will meet with little opposition, for they are already freely accepted; left-handedness is scarcely pathological, and whether its basis is anatomical or emotional is only of theoretical interest; but his attack upon the firmly entrenched position of his fellow ophthalmologists should stimulate further investigation of the temperamental reactions of the squinting child.

OBLIQUE ADVERTISING.

IT was a piquant coincidence that the World's Advertising Convention visited Bradford on the actual day on which the Representative Body of the British Medical Association was discussing the question of procedures that might fall under the head of advertising by members of the medical profession. Advertising of a person differs essentially from advertising of a product, if only because a product is susceptible of analysis to prove the rightness of claims made for it, whereas a person cannot be cross-examined upon his fitness for any status that appears to be assumed publicly either by him or for him. We have been well reminded in the daily press that advertising is an art that applies only to products in bulk, and the Convention endeavoured, and with some success, to redeem the word from the discredit into which it has been brought as a synonym for trickery and dishonesty. The discussion by the Representative Body will be found on page 244 of this issue.

If we assume, in relation to what appears in the lay press, that in both trade advertisements and professional publicity the goods are honest, the essential difference remains between the repeated asseveration in the former case, that counts by its mere cumulative effect, and the public statement made upon a particular and topical subject by a medical man, which counts by reason of his established reputation. There are frequent situations in which the signed statement of a man of science, such as a medical man, is of the highest public value, and a very striking instance was afforded in the daily press last week apropos of a much-advertised remedy, in which the phrases "eminent chemist" or "eminent doctor" would obviously have counted for little or nothing—the actual names were needed, and it is the publication of names which offends the ideals of medical ethics. In this respect the otherwise admirable and practical report of the Association's Central Ethical Committee, which we print at length on page 246, was felt by the Representative Body to be out of touch with the actual situation. The newspapers, the report runs, can give the necessary assurance to their readers as to the professional standing of the authority quoted without mentioning names; but the meeting was quite definite in regarding as unreal the suggestion that names do not count. What professional opinion demands is rather that names shall only be used when they do count, and that there shall be some tribunal, other than the authority himself or the organ of the press which claims him as an authority, to decide whether the name does count or not. Dr. R. L. LANGDON-DOWN pointed out on behalf of the Ethical Committee that the basis of professional reputation must not be the self-praise of the individual nor the appreciation of those unqualified to judge, nor should it depend on the frequency of the appearance of the practitioner's name (with or without photograph) in the public press. The report of the Ethical Committee, he said, was an endeavour to clear their own minds and to treat the subject of advertising as a live part of "professional law," by which the speaker meant some accepted code of medical ethics. The principle is easy, only the application is difficult; and he held it to be the function of the British Medical Association to insist on the guiding factors, leaving to the General Medical

Council the decision as to whether certain conduct should or should not have occurred, and, having occurred, did or did not call for disciplinary interference.

With regard to the question of the appearance of names at the foot of letters or articles in the public press, the iniquity, according to Dr. H. B. BRACKENBURY, lies in the insertion of address, photograph, and titles; and here we are in entire agreement with Dr. E. R. FOTHERGILL, who in the course of the same debate asserted that some sort of coöperation is desirable with the lay press; for otherwise surely it is impossible to keep back information which is available on the reference shelf, or to avoid the portrait which is so easy to obtain without the victim's consent. It is idle to overlook the fact that in our impression of a personality not only is the name included, but the sound of the voice, the appearance of the features and gestures, and by laymen the withholding of everything but the name of the medical authority is regarded as a sort of professional snobbishness, difficult to understand, and apt to annoy. It may well be that we are passing through a temporary phase in regard to this form of advertisement, of which it is the newness that counts with the public, and that when the public becomes as used to it as it is to headlines and other developments or regressions in journalism, it will be able to assess the medical letter in the lay newspaper at its value. Perhaps more may be safely left to public opinion than those who are unduly anxious at the moment are inclined to admit.

Annotations.

"Ne quid nimis."

THE RESULTS OF TREATMENT IN SANATORIA.

THE results of hygienic-dietetic treatment as carried out in a well-run sanatorium are even more difficult to assess than those of any suggested specific remedy for pulmonary tuberculosis, for while the administration of a drug, the injection of a serum, or the inhalation of a gas can be tried out as the one variable factor in the general hygienic treatment of a community of invalids of approximately the same age and stage of disease, the sanatorium itself is essentially an institution where all the lessons derived from the sciences of pathology and hygiene, tempered by therapeutic experience, are combined and enforced. So universally approved is this basic routine of fresh air, rest, regulated diet, and exercise, that it is not easy to collect for purposes of comparison any body of individuals treated on radically different lines. Failing a control series of cases, the investigation undertaken at the request of the Medical Research Council by Sir Percival Horton-Smith Hartley, Dr. R. C. Wingfield, and Mr. J. H. R. Thompson, F.I.A., into the results of sanatorium treatment has taken the form of a careful study of the after-histories of those patients treated at the Brompton Hospital Sanatorium, Frimley, during the years 1905–14. The outcome of this study was issued last week in the form of a Green-book.[1]

The material under consideration consisted of 3400 patients, 2393 men and 1007 women, of whom only 10 per cent. defied all efforts to trace their present whereabouts or state of health. Incidentally, a survey of the occupation previously followed by these patients would at once suggest an open-air life as a desirable therapeutic measure, since the three largest groups in either sex were as follows: (Men) clerks, 399; shop assistants and salesmen, 158; porters (indoor), 98; (women) domestic servants, 216; housewives, 185; "at home," 118. The data on which the analysis was based is as shown in the table.

[1] Medical Research Council. Special Report Series No. 85. H.M. Stationery Office. 1924. 1s. 6d.

The mortality was determined according to condition on admission, according to condition on discharge, and again, according to the presence or absence of tubercle bacilli in the sputum; also in relation to the type of onset. Of the conclusions reached, the following are emphasised as of special importance. 1. The results of sanatorium treatment at Brompton Hospital correspond very closely with the results

Sex.	Number of patients.				Years of life observed.	
	Discharged	Died.	Lost sight of	Living in 1918.	Number.	Average number.
Males ..	2393	1207	209	977	11,446	4·8
Females .	1007	378	134	495	5,152	5·1

already reported from the King Edward VII. Sanatorium, Midhurst. They correspond, but not so closely, with those presented in Dr. H. Vallow's report from Bradford. 2. The mortality of patients without tubercle bacilli in the sputum is less than that of patients with tubercle bacilli in the sputum. The curves of survival among both males and females of those in the former category approximate to those of the general population. The authors deduce that enduring arrest of the disease is to be expected from sanatorium treatment in many early cases of the kind admitted to Frimley. 3. Of cases with tubercle bacilli in the sputum, it is certain that the earlier the stage when the disease comes under sanatorium treatment the greater is the chance of survival. In Group 1 (early cases) 79·3 of the male patients and 89·7 of the female survive five years, the corresponding number of survivors after ten years being 65·5 per cent. and 85·2 per cent. respectively.

Those already convinced of the value of sanatorium treatment, to whom the problem centres on the relative stress to be laid on rest and graduated labour, will be interested in the similarity of the results obtained at Frimley to those recorded by other institutions. For the rest, the direct economic return from the sanatorium treatment of cases without tubercle bacilli in their sputum would seem to be established, inasmuch as the chance of survival in these cases does not differ widely from that of the non-tuberculous; again, the progress of very early "open" cases must be deemed satisfactory. More than half the total number of cases admitted to Frimley, however, belong to Group 2 (moderately advanced cases); among these the percentage of survivors after five years is 56·8 among males and 67·4 among female patients, and at the end of ten years, 38·2 males and 49·7 females. As to the patients admitted in a really advanced stage, it is not claimed that the results are at all satisfactory from the strictly economic standpoint. But this survey, which has been carried out with evident skill and impartiality, deliberately takes no account of the educative value of the sanatorium as one of the means whereby the spread of infection is minimised and a more correct mode of life is taught. It is impossible to estimate the far-reaching influence for good that may be exerted by sanatorium training on patients willing to learn how to protect their house-mates and neighbours, and it is probable that even if the duration of life of an advanced case discharged from a sanatorium is quite short, the habits inculcated there are likely to minimise the dangers of dissemination of tuberculosis among the general public.

A HOSPITAL SHIP IN THE PACIFIC.

Surgeon-Commander W. N. Horsfall has told, in the *Journal of the Royal Naval Medical Service*, how he fitted out and managed a hospital ship in the war; it is a story that is worth reading, while it cannot be said, whatever our hopes, that no one is ever likely to be in such a position again. The ship was *Glenlala*, No. 8, equipped at Sydney in August, 1914, for service with the Pacific Fleet. Her stores and equipment were ready for her, so she was able to sail in ten days. The sick-berth staff were ambulance brigade volun-

teers, who, though with little previous experience, did capital work, especially when they had unlearnt their first impression that they were working as a favour, and did not have to do as they were told. Commander Horsfall, who had been a staff surgeon in the Navy, seems to have concentrated on essentials, and generally managed to see that they were got. The six medical officers under him were sent on board in plain clothes and the volunteers did not acknowledge their authority, which made things awkward, but Commander Horsfall, with the help of the nursing sisters, made them shoulder straps, "when the surgeons became commissioned officers," and all went well. He adds: "The Navy is a great service and its discipline is such as to give to one the greatest freedom." It will be easier to fit out a hospital ship in future, whether the action has to be taken in routine or under emergency, and those who want to know what to do and how to do it should consult Surgeon Rear-Admiral Sutton's book on the subject. But personality will always find outlets. No book instruction will help a man much during a strike of the firemen in their forecastle, nor can a written recipe be given for Commander Horsfall's arguments when he persuaded them to call the strike off and let the ship go to sea.

We notice a curious misprint in this issue of the journal. The well-known Parkes Memorial Prize does not commemorate the distinguished R.A.M.C. officer Surgeon Parke, who crossed Africa with Stanley and won high appreciation for his care of the sick; but was founded in honour of the famous E. A. Parkes, the father of modern military hygiene and first professor of hygiene in the Army Medical School.

THE SUBNORMAL EX-SOLDIER.

ALTHOUGH it is now over five years since the armistice was signed, the time has not yet been reached when the care of the man who came back broken from the war can be relaxed. Lord Haig points this out in an introduction to the fifth annual report of the Enham Village Centre, adding that at this centre the outlook of many disabled ex-Service men has again become happy and contented after years of hopelessness and uncertainty. It has always been one object of this Centre, the policy of which was conceived and has largely been directed by medical men, to establish a permanent settlement for those men who, owing to the nature of their disability, are considered unfit for re-entering the labour market. Fifty disabled men are now permanently employed or settled at Enham, 30 of them occupying cottages, and a wood-working factory has been erected, fitted with up-to-date machinery, and capable of employing 100–125 men. The population of the Centre has, indeed, risen from the original number of 62 to the present large total of 468, all told. At the same time, during the last 15 months, a scheme has been developed under the Ministry of Labour to include industrial training for those able to do 44 hours' training per week. The actual number of these, naturally, is now diminishing from year to year, as there become fewer cases eligible for combined treatment and training, but it is the ambition of the promoters that as the supply of war victims falls, the Centre may remain as a national establishment for the restoration of health and for the physical re-education of other persons injured in the service of the State. Dr. G. V. Stockdale, medical officer to the Centre, tells us that of the 103 cases remaining in residence on the first day of the present year, 46 were suffering from neurasthenia, 35 from general surgical conditions, half of them being gunshot wounds of the head, 19 from general medical conditions, three from the results of tropical diseases, the proportion being practically the same as last year. Pensioners who, by reason of their disability, can never become employable or work for themselves, should, Dr. Stockdale feels sure, be allowed to live at home on an adequate pension; but for those who would find difficulty in getting employment outside, the system adopted at Enham appears to offer the most satisfactory solution of the disabled ex-Service man's problem. Employment is here offered under sheltered conditions; the man is freed from anxiety and encouraged by a feeling of comparative independence. Of the 622 men who had left the Centre up to the time of the report, 348 were reported as employed and in training, 52 as unemployable (80–100 per cent. pensions), and 33 as unemployed. Every effort is being made to find work for these men, for all of whom references can be given. The chief wants of the Centre are now more cottages, an outlet for articles produced in the new workshops, and an endowment fund of £100,000 to supplement the work of men suffering from severe disablement who can never become economic productive units. The economic position of the Centre is not yet what it should be, and there are difficulties to be met, but the report is a record of a successful and well-administered piece of practical philanthropy.

BIOLOGY AND SOCIOLOGY.

Prof. Arthur Dendy[1] believes that the general principles of biology can help us to solve the various social and political problems which bother us to-day. With his primary postulates not everyone will agree, and it is well that he has set them out plainly. The pyramid of society is based, he says, on what took place in the world of living things before mankind came into existence. It may be so. But there is a not unimportant school that thinks it more likely that man's soul is qualitatively a new thing, added to the accumulation of evolved attributes and not necessarily arising from them. On the other hand, it has also been urged that the dead and live worlds form one continuous whole with qualities differing quantitatively rather than qualitatively in its diverse parts. Prof. Dendy premises, too, that the laws which governed organic evolution in its earlier stages were not repealed when man arrived on the scene. They may not have been repealed, it is true, but some people think that they have been added to to such an extent that, like a good many old laws, they no longer run. With these possible divergencies of outlook at the very beginning, anyone who believes that progress for the future may be obtained by a study of the past will read the book with interest. It is intended more especially for those without any special knowledge of biology: there is much more biology than political economy and the biological exposition is of the high order that we should expect from the author of the "Outlines of Evolutionary Biology." The sociological conclusions are put shortly and dogmatically, the position of women, the House of Lords, birth-control, democracy, the colour question, and so on, are disposed of summarily enough. Broadly speaking, four main biological topics are dealt with. The fact of organic evolution shows that man is an animal in series with other animals. The study of the community of organs which makes up the individual and of the integration of individuals to make insect and similar societies points the way to the arrangements which are desirable in human communities. The inherent variability of live things indicates that the idea of the essential equality of all men is delusory or worse. The facts of heredity and modern knowledge of its mechanism are of prime constructive importance: "it is better to be born with the right kind of chromosomes than with a silver spoon in one's mouth." Such, with many subsections, is the main argument. We could wish that parts of it had been set out in greater detail. Prof. Dendy mentions, for example (p. 63), "the instinctive aversion to foreigners which lies at the root of national feeling." It would have been interesting to hear his discussion of "national"

[1] Biology and Sociology: The Biological Foundations of Society. By Arthur Dendy, Professor of Zoology in King's College in the University of London. London: Constable and Co. 1924. With 21 figures. Pp. 197. 7s. 6d.

in contrast to "racial" foreigners (or, indeed, to know whether by "national" he means "racial") and his reply to the proposition that there is no "instinctive" aversion to foreigners, a view set out well in Mr. J. H. Oldham's recent book, "Christianity and the Race Problem." But the book is, of course, small, and the author raises questions which would want an encyclopædia for adequate ventilation, so that what will appear to many to be cursory treatment is mostly a necessity of space and time, and sometimes, perhaps, a consequence of the author not having thought very hard on matters outside his immediate professional province. Generally, the book may irritate the progressive revolutionary, because it finds in biology grounds for defending the existing conservative order. And it will disappoint the visionary, because of its uncertain views about the future. If man imitates the numerous past evolutionary lines which have grown progressively longer and more complicated, he is evidently destined to come to an end altogether pretty soon. The share which chance takes in his ontogeny inclines Prof. Dendy, in another place, to the view that man is the sport of a Nature which is indifferent to his welfare. But he thinks that the world is big enough to accommodate the human race and he would have men choose their own wives—which are more cheerful thoughts.

There is a mistake (p. 62) about incompatibility of bloods for transfusion in man. The blood of a near relative is not much more likely to be suitable than that of a complete stranger: it depends on their precise genetic constitution in respect of isoagglutinins.

THROMBOPENIC ANÆMIA AND SPLENECTOMY.

THE fourth of the formed elements of the blood, the "platelet" or "thrombocyte," has laboured under a cloud in this country. Long ago it was pronounced to be an artefact or at best a fragment of the nuclear material of a dead and gone leucocyte, and as such it has been dismissed as unworthy of the serious contemplation either of the practising medical man or of the laboratory worker. In the years during which it has been regarded as a subject hardly suitable for conversation among polite British hæmatologists, however, it has been enjoying a large degree of attention abroad, particularly among the German and American workers, and the time now appears to have arrived when even in this country it must be admitted to a place in the blood picture. That the blood platelets undergo important alterations both in number and in appearance in at least one particular type of the hæmorrhagic diathesis was pointed out ten years ago by Duke[1] in America, and a little later by Frank[2] in Germany. Frank from Berlin, and Kaznelson[3] from Prague, both described a syndrome characterised by purpura hæmorrhagica in association with splenomegaly. In this condition they found the blood invariably to show a severe anæmia of aplastic type, together with a great reduction in the number of the platelets; usually there was also a leucopenia, sometimes extreme in degree, with its main incidence upon the granular leucocytes. Both Frank and Kaznelson regarded the reduction of the platelets as the immediate cause of the purpuric manifestations; for this condition Frank used the term "thrombopenia," which has come into more or less general use, though the term "thrombocytopenia," suggested by Kaznelson, is preferable, if not on the grounds of euphony, at least as an accurate statement of the state of affairs which it is intended to indicate. Three cases of this thrombopenic anæmia, all showing purpura and splenomegaly, were recently reported by S. C. Dyke[4] in THE LANCET; in Dyke's cases infection of the hæmatopoietic system was found post mortem in every case, but this was regarded by the author as secondary to the weakened state of this tissue. Both Frank and Kaznelson, though on different grounds, implicated the spleen through a disorder in its function as the cause of the condition. Frank regarded the thrombopenia as due to an aplastic state of the bone-marrow, the source of the platelets, and this myelophthisic condition he thought to be brought about by some toxic body produced in the spleen and acting through the blood-stream. Kaznelson found the enlarged spleen from one of his cases to be crammed with platelets, and on the strength of this observation concluded that the diminution of these bodies was due to their abnormal destruction by the spleen. Both Kaznelson and Frank recommended splenectomy for this condition, and practised it with apparently beneficial results.

In the last published volume of the International Clinics, N. E. Brill,[5] of New York, records one further case of splenectomy for purpura hæmorrhagica, and demonstrates a second case in which operation had not been undertaken at the time of reporting: in this second case the spleen was also removed later, and the results of both operations have since been described together by the same author.[6] In both cases splenectomy resulted in the immediate cessation of the hæmorrhages, which had been severe and long-continued, and in the apparent restoration of the patients to complete health. So sudden was the cessation of the hæmorrhages in his cases that Brill was inclined to doubt whether the purpuric manifestations could be entirely accounted for by the existing thrombopenia. He found that, although the platelet count rose immediately after the splenectomy, it fell within a week almost to its previous low level, and concluded that some factor other than mere reduction in the number of the platelets must be present to produce purpura; this factor, he suggested, might be some unknown substance produced by the spleen and acting through the blood-stream. His views are thus seen to partake of those of both Frank and Kaznelson. Probably the end of the matter is not yet, but very strong evidence in support of the view of Kaznelson was produced by S. P. Bedson at the meeting of the Pathological Association of Great Britain and Ireland, held in London a few days ago. Carrying on the previous observations of J. C. G. Ledingham[7] this worker was able some time ago, by the use of an antiplatelet serum prepared from rabbits by the injection of guinea-pig platelets, to show that destruction of the platelets in the guinea-pig was always followed by purpura.[8] At the meeting in question he showed four guinea-pigs, two of which had undergone splenectomy, and all of which had received the same dose of antiplatelet serum. The unsplenectomised animals showed an intense purpura; those from which the spleen had been removed, on the other hand, showed no hæmorrhagic manifestations. Bedson offered as an explanation of this phenomenon the fact observed by himself that after splenectomy the platelets greatly increase in numbers, as a result, he suggests, of the removal of the normal thrombocytolytic action of the spleen. He found that this increase of platelets in the guinea-pig after splenectomy was only temporary, and that as other portions of the reticulo-endothelial system took on the function of dealing with the thrombocytes, their numbers again fell to normal. On this supposition the benefit to be expected from splenectomy in purpura hæmorrhagica should be only temporary; whether this will prove to be the case remains to be seen. Already the operation has been performed at least twice in this country for this condition and reports may be expected in due course.

[1] Duke: Arch. Int. Med., 1913, xi., 100.
[2] Frank: Berl. klin. Woch., 1916, xxxvii., 2, xli., and subsequent vols.
[3] Kaznelson: Zeitsch. f. klin. Med., 1919, lxxxvii., 133.
[4] Dyke: THE LANCET, 1924, i., 1048.
[5] Brill: International Clinics, March, 1924, i., 34th series, p. 34.
[6] Brill and Rosenthal: Arch. Int. Med., 1923, xxxii., 939.
[7] Ledingham: THE LANCET, 1914, i., 1673.
[8] Bedson: Jour. Path. and Bact., 1922, xxv., 94.

THE HEALTH OF THE MERCHANT SEAMAN.

IN the course of a discussion on ship sanitation at the Royal Sanitary Institute congress at Liverpool, which was reported in our last week's issue, a plea for the collection of statistics of death in the Merchant Marine was put forward by Fleet-Surgeon W. E. Home. Commenting on papers on the Present Standard of Ship Sanitation and on the Hygiene of the Tramp Steamer, communicated respectively by Dr. W. Hanna and Dr. J. Howard Jones, he pointed out that these two excellent papers on hygiene made no allusion to statistics of illness or deaths in the Merchant Marine, and that, in fact, no useful health statistics were published as to this service. The Army, Navy, and Air Force had organised medical services to watch and report on their health. For the rest of the people of England, except the Merchant Marine, the Ministry of Health was responsible. Nobody was responsible for the health of the merchant seamen. All that could be ascertained about his health or his diseases was in the Return of Deaths on Vessels, issued by the Board of Trade, which was an unsatisfactory report. It contained lists of the deaths that occurred in 1921 among British seamen, foreign seamen, and Lascars, but the total figure (274,216) was not differentiated among these groups. If the proportions were the same as in 1914, the several numbers would be (in thousands) British, 190; foreign, 33; Lascars, 50. The speaker had been unable to find that the head-quarter staff of the Board of Trade contained any doctors. Tuberculosis was classified under "Group B, Constitutional," the Board of Trade not having yet heard, apparently, that tuberculosis is known now to be infectious. A classification which linked tubercle, rheumatism, and cancer in one group was once in vogue in the Navy, but was given up by the Admiralty in the Navy Health Blue-book as long ago as 1886. Fleet-Surgeon Home quoted other anomalies of classification and submitted two resolutions begging the Council of the Institute to ask that at least better returns be provided in future, but that, if possible, the care of the health of merchant seamen should be handed over to the Ministry of Health and taken altogether away from the Board of Trade. This was seconded by Alderman Askew, chairman of the Hull and Goole Port Sanitary Authority, and carried unanimously.

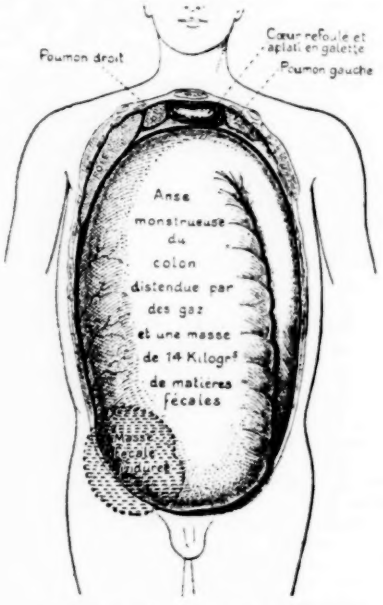
EXANTHEMA SUBITUM.

THE occurrence of rashes associated with fever in infancy and early childhood has been widely recognised, and has usually been attributed to digestive disturbances. While these rashes are of no serious import to the patient they are often a source of perplexity to the practitioner, owing to their resemblance to the infectious exanthemata, more particularly to rubella. During the last decade a number of continental and American pædiatrists have described cases of fever, lasting a few days, and followed by an exanthem, but showing no evidence of infectivity. Dr. E. Glanzmann, of Berne,[1] reviews the literature of this subject, and describes a number of cases which he has observed during the last six years. He is of the opinion that cases of remittent fever lasting three days, falling by crisis, and followed a few hours later by an exanthem, are sufficiently numerous and true to type to justify their description as a clinical entity, for which he has retained the name of *Exanthema subitum*, which was suggested by B. S. Veeder and J. Hempelmann in 1921. The rash, usually morbilliform but occasionally erythematous, is most copious on the trunk, and scanty or absent on the face and limbs, it disappears in from 24 to 48 hours. The blood-picture is sufficiently constant to be of diagnostic value, showing marked leucopenia with a relative lymphocytosis. Dr. Glanzmann discusses in detail the points by which this syndrome may be distinguished from the other exanthemata. The authors whose articles are noticed in this paper are not in complete agreement about the nature of this condition. Dr. Levy regarded it as an atypical form of rubella; in some of his cases the cervical glands were enlarged. One point of interest which is not mentioned might emerge from the after-history; how many of these cases subsequently contract rubella?

[1] Schweizerische Medizinische Wochenschrift, Nr. 26, p. 589.

CONGENITAL ENLARGEMENT OF THE COLON.

AT a recent meeting of the Medical Society of the Hospitals of Paris, Drs. Bergé, Chevrier, and Lefèvre demonstrated post mortem a case of congenital enlargement of the colon in a boy of 15. The patient had suffered from constipation since birth, and had often felt no call to stool for periods of a week or even a month at a time. He was operated upon for an


Poumon droit
Cœur refoulé et aplati en galette
Poumon gauche
Anse monstrueuse du colon distendue par des gaz et une masse de 14 Kilogr. de matières fécales
Masse fécale indurée

Congenital enlargement of the colon.

attack of intestinal obstruction, and died a few days later. At the autopsy it was found that not only the abdomen but the thorax also were completely filled by two loops of the colon, one of which was distended to an enormous extent. At first sight it seemed as though the thoraco-abdominal cavity, from clavicles to pubis, contained nothing but these two enormous loops of colon, but closer examination revealed a narrow space, about 2 inches in depth, in the upper part of the thorax, into which the heart, the lungs, and the liver were compressed. The spleen alone retained approximately its normal position. (See figure.) The loop of distended colon measured 50 cm. in length, 27 cm. in breadth, and 54 cm. in circumference. The retained fæcal matter weighed almost 14 kg., and the loop contained much gas. "This weight and these dimensions," says a French correspondent, "justify the publication of this case and diagram."

CONCUSSION CHANGES IN THE EYE.

IN the current number of the *British Journal of Ophthalmology* Sir William Lister discusses some concussion changes met with in military practice. The main part of the paper now published was read at a meeting of the American Academy of Ophthalmology and Oto-laryngology at Washington in 1923; it is liberally illustrated by coloured plates of fundi and many figures and diagrams. The first subject

dealt with is ruptures of the sclera. Those caused by slowly moving objects, such as stones or fists striking the eye-ball directly, occur in the equator where the eye is least supported. On the other hand, rapidly moving missiles which pass through the orbit, but do not strike the eye directly, may yet cause a rupture of the side opposite to the point of impact of the air-wave caused by the missile—i.e., at the point of contre-coup. Concussion changes of the iris and ciliary body include irido-dialysis—i.e., the tearing away of a portion of the iris from its peripheral attachment, and dislocation of the iris peripherally causing a pear-shaped pupil, or in severe cases an "apparent iridectomy." Concussion changes in the retina and choroid occur in three situations: (1) the area adjacent to the site of impact; (2) the macular region; and (3) opposite the site of impact. The first situation is the most constant, so that in cases where the entrance wound is insignificant the ophthalmoscope may give the first proof that a foreign body has traversed the orbit. Histologically hæmorrhages in and about the retina and choroid are of every variety, subhyaloid, inter-retinal, and subchoroidal. The four main changes found in the retina are (1) the shrinking and disappearance of the nuclei of the granular layers, (2) vacuolation of its substance, (3) the splitting of the retina into layers by hæmorrhages, and (4) folding of the retina. Evulsion of the optic nerve may also be a concussion phenomenon—i.e., without any penetrating wound. A blow on the front of the eye may so increase the intra-ocular pressure as to break through the lamina cribrosa and expel the nerve. The lamina cribrosa may also be ruptured by the explosive effect of a missile passing through the back of the orbit or by extreme rotation of the eye. In either case the optic nerve will be extremely stretched and evulsion of the nerve head may occur. This article and the plates that accompany it should be studied in the original.

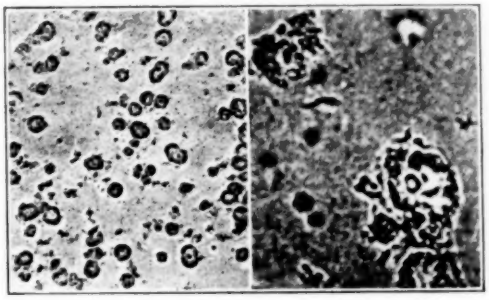
WET BERI-BERI IN FRENCH COLONIAL TROOPS.

Major J. M. Fricker describes, in a recent number of the *Archives de Médecine Militaires*, a small outbreak of wet beri-beri which arose in France among some Hovas from Madagascar. In June, 1923, several of these men were placed upon the sick list, their most conspicuous symptom in all cases being an œdema which was very marked in the face and lower limbs. Several of the patients died, and with a view to special laboratory investigation all of the remaining cases were gathered into a hospital at Châlons, where they came under the care of Major Fricker. Fifteen in all of these special cases were received. The most striking evidence of disease was the facial œdema, with puffiness of both eyelids, and, in the three worst cases, a full moon-like appearance, noticeable because the Hovas have very well-cut features. Those lightly attacked had œdema of the legs; in the three severe cases the œdema had gradually appeared higher and higher, invading thighs, hips, scrotum, penis, abdomen, and trunk, so the vertebral spines could not be felt. Each gave a history of 20 or 30 days of slowly increasing swelling of the legs. They were all easily fatigued and complained of breathlessness and pains in the legs. Examination showed but one positive further sign, oliguria; no pyrexia, no albuminuria, no casts, no heart lesions, no pareses or anæsthesiæ, but the three advanced cases manifested ascites, pulmonary œdema (with cough), pleural effusion (no fibrin in the fluid drawn off), and pericardial effusion; they had also orthopnœa. None had ankylostomiasis, so the diagnosis made was the wet form of beri-beri. All had been a year in France, and had been getting a diet of rice and meat, but with too few green vegetables. They were put on lightly boiled eggs, plenty of green vegetables, salads, lemons, and beer yeast, and the slight cases had recovered in ten days. The more serious got, in addition, theobromine as a diuretic, cardiac tonics, a salt-free diet, and little to drink; they soon began to pass more urine, their œdema passed off, and they were well in three weeks.

THE VIRUS OF FOOT-AND-MOUTH DISEASE.

THE *Berliner Tierarztliche Wochenschrift* of July 4th contains a set of reproductions of ultra-micro-photographs of foot-and-mouth disease cultures, some of which we reproduce here. Fig. 1 shows a superficial deposit of a culture on a solid medium,

FIG. 1. FIG. 2.



with many colonies under a magnification of 375; they take the form of small elevations the size of a red blood cell. Fig. 2 shows the same colonies photographed with spectral blue light under a magnification of 1200. Fig. 3 shows the same colonies photographed with Köhler's ultra-micro-

FIG. 3. FIG. 4.

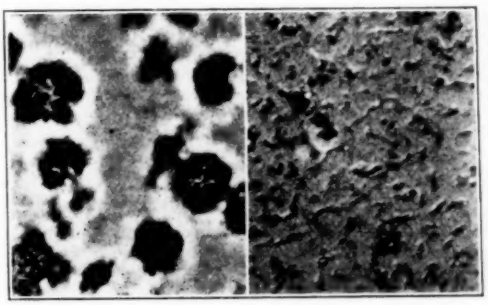


photo apparatus, with ultra-violet cadmium light (×2000). Fig. 4 shows a smear preparation photographed with ultra-violet light. These interesting photographs give a good idea of the appearances of the colonies, which be it remembered, are themselves scarcely larger than a single yeast cell.

Sir Harold J. Stiles, K.B.E., has been appointed by the King an honorary surgeon to His Majesty in Scotland, in the place of the late Sir William Macewen.

Dr. E. H. Kettle, who has held since 1919 the post of pathologist to St. Mary's Hospital, London, and lecturer in pathology at the medical school, has been appointed to the chair of Pathology and Bacteriology in the Welsh National School of Medicine, vacant by the death of Prof. Emrys-Roberts.

THE Royal Commission on National Health Insurance announce that they will commence to hold meetings for the hearing of evidence in October next. Any persons or bodies desiring to give evidence should in the first instance communicate in writing with the Secretary of the Commission, Mr. E. Hackforth, at the Ministry of Health, Whitehall, S.W. 1, stating the main heads of the evidence they desire to submit.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

LXXXII.—THE TREATMENT OF DYSENTERY.

I.—BACILLARY DYSENTERY.[1]

(A) *Acute Bacillary Dysentery.*

A PATIENT suffering from an acute attack of bacillary dysentery should be put to bed and not allowed to get up for any purpose. The treatment may be conveniently discussed under three headings: (1) diet, (2) the administration of salines, (3) serum treatment.

The *diet* should be fluid, consisting of albumin water, whey, beef-tea, chicken-tea, raw beef-juice, or meat jelly, given in small quantities every two hours. Milk is unsuitable in the acute stage of dysentery, and should be excluded from the dietary. During the first few days the supply of an abundant amount of fluid is of great importance, and the patient should be encouraged to drink as much water, barley-water, or lemonade (only slightly sweetened) as he may desire.

The *administration of salines* is invaluable during this stage. Their action, in no sense specific, depends on a gentle lavage of the intestinal mucous membrane by the copious watery secretions, whereby inflammatory products containing bacilli and toxins are washed away in place of being absorbed. The sulphate of magnesium or sodium, or sodium phosphate may be given, a drachm every two hours during the daytime only, between the hours of 8 A.M. and 6 P.M. Diurnal irrigation of this kind may be safely combined with sedative treatment at night time—e.g., a dose of laudanum or a hypodermic injection of morphia, often needed for the relief of pain and tenesmus, and to promote sleep. After two or three days the quantity of sulphate may be reduced by one half; but the treatment in modified form should be continued until convalescence is established, as it is important that the motions should be prevented from becoming hard and constipated during this perod.

Serum Treatment.—Antidysenteric serum is of the greatest value, and should be given in all but mild cases. Two conditions are essential to success: (*a*) the serum should be administered at the earliest moment; (*b*) it should be given in sufficient quantity. The earlier the stage of the disease, the more effective is the treatment. Its value rapidly lessens with lapse of time, and there is probably little to be gained by initiating serum treatment at a later period than the sixth day. 60, 80, or 100 c.cm. may be injected subcutaneously into the loose tissues of the lateral abdominal wall or elsewhere; the effects of smaller doses are in proportion far less striking. In many instances a single dose is all that is necessary; but if the symptoms are not clearing satisfactorily a second dose may be given after an interval of two days. In urgent cases with fulminating symptoms of choleraic type the serum should be injected intravenously and combined with hypertonic saline solution. The most favourable results may be expected if a serum is used containing exclusively Shiga or Flexner antibodies, according to the type of infection; but in practice no time should be lost by waiting for the laboratory report; the more acute the symptoms, the more likely is the case to be one of Shiga infection, and the best course is to use a polyvalent serum which is known to be rich in Shiga elements. If a second dose is needed, it may consist of pure anti-Shiga or anti-Flexner serum, according to the pathological diagnosis.

The drawbacks to serum treatment are for the most part unimportant. Anaphylaxis is a very rare complication, but its manifestations may be so formidable that it is a wise practice to put the following preliminary questions to the patient: (*a*) Has he had diphtheria? (*b*) Was he on active service during the war? If so, (*c*) Was he wounded; or (*d*) did he suffer from dysentery? In the case of an affirmative answer to any of these queries, the administration of the full dose of serum should be preceded by a tentative injection of 1 c.cm., which will have the effect of unmasking and, at the same time, of removing any hyper-sensitivism that may exist. Serum fever, arising about the fifth day after the injection, with an urticarial or erythematous type of rash, is of no serious consequence. Joint pains, with or without swelling, may occur at the same time or a few days later, and have to be distinguished from true dysenteric arthritis, which, however, is a much more definite and severe form of arthritis, and is comparatively late in its onset.

Convalescence.—The most important consideration in guiding the patient through the stage of convalescence is the management of the diet. This should be increased, as in typhoid fever, by slow degrees, the effect of each addition being carefully watched before any further advance is permitted. Nutritious jellies, egg beaten up in milk, custard, junket, soft bread and milk made without crusts, and milk thickened with farinaceous foods may successively be added. When convalescence is fully established, as shown by a clean tongue and the disappearance of abdominal symptoms, a rapid advance to a normal dietary may with confidence be made; even in cases where the initial symptoms were severe, the progress to recovery may, in the absence of complications, often be surprisingly rapid.

Complications.—Profuse hæmorrhage and perforation are both rare events in the course of the acute stage of dysentery. Hæmorrhage calls for absolute rest, the complete withholding of nourishment by the mouth, and the administration of morphia hypodermically. In severe cases the subcutaneous injection of normal saline, or an isotonic mixture of glucose solution with saline is indicated. In the event of small recurring hæmorrhages rectal injections of copper sulphate, 1 in 1000, may be useful, the mucous membrane having been cleansed by preliminary irrigation with warm water or saline solution. In the unlikely event of perforation during the acute stage an immediate laparotomy affords the only chance of saving the patient's life. In cases of fulminating dysentery with diarrhœa of choleraic type it is important to exclude cholera, which may be done by a microscopic examination of the watery stools and noting the absence of vibrios; the treatment consists of the immediate injection intravenously of a full dose of serum, repeated if necessary, and combined with hypertonic saline solution. Arthritis occurs more often in sequel to a Shiga infection than in cases of Flexner dysentery. It arises usually in the course of the third week, and is accompanied by considerable enlargement and tenderness of the joints, with effusion of fluid. Complete rest of the affected joints is necessary, and much relief may be obtained in suitable cases by tapping and the removal of the fluid. A dose or two of serum may be followed by rapid subsidence of the joint symptoms; but this remedy should be used with caution if serum has been administered during the acute stage, owing to the risk of anaphylaxis. It is a mistake to keep the joints at rest too long; after the subsidence of the acute symptoms, massage and carefully regulated passive movements should be employed, and radiant heat is useful.

(B) *Chronic Bacillary Dysentery.*

Chronic bacillary dysentery is more likely to follow in the course of a comparatively mild Flexner infection than the severer types of Shiga dysentery, and may lead to a clinical condition that calls for the utmost skill and resourcefulness on the part of the physician. As the symptoms of a chronic bacillary infection may closely resemble those of amœbic dysentery, it is necessary as a preliminary measure to make a careful examination of the stools. In not a few cases it will be found that both a bacillary and an

[1] The Treatment of Amœbic Dysentery will be dealt with in THE LANCET next week.

amœbic infection exist side by side, and in such an event a course of treatment with emetine is of primary importance. Wasting is often a marked feature of chronic dysentery, and may be so extreme that the nourishment of the patient becomes the paramount consideration. Under these circumstances better results may be hoped for if the patient is placed on a fairly generous dietary, composed of soft semi-solid articles of food, from which everything of an irritating nature is rigidly excluded, than on a strictly fluid régime. In the management of the bowels constipation may call for the use of sulphates, or in some cases repeated small doses of calomel (gr. ¼ four times in the day) may be remarkably beneficial. In other cases profuse and exhausting diarrhœa is a prominent feature, and may be met by β-naphthol (gr. 5 in cachet four times a day), or bismuth salicylate (gr. 20 four times a day). Lavage of the intestine is more often useful than in acute dysentery; a long soft tube should be employed, and the fluid allowed to flow in gently through a funnel by gravitation. Dilute solutions of antiseptics, such as eusol, or of astringents, such as silver nitrate or copper sulphate (1 in 1000), may be used, but it may be regarded as doubtful whether these have any real advantage over cleansing injections of warm boric or weak permanganate solutions, or even of warm saline. A considerable number of cases ultimately prove refractory to all forms of medical treatment, and in these the question of securing a more efficient degree of lavage by appendicostomy should be considered, or complete rest for the lower bowel may be temporarily provided by arranging for the evacuation of the fæces through an opening in the cæcum. Vaccine treatment has been employed with a certain measure of success. Perforation is a more likely complication of chronic than of acute dysentery; owing to adhesions the resulting peritonitis is often localised, and ultimately a large circumscribed abscess may be formed. On account of the chronic nature of the process the clinical picture is often quite indefinite, and the condition may exist for some time before it is recognised; the treatment is surgical.

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Special Articles.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

THE Prince of Wales presided at a special meeting of the President and General Council of King Edward's Hospital Fund for London at St. James's Palace on July 25th.

Lord Stuart of Wortley, chairman of the Management Committee, presented a report on the recommendations of the Ambulance Cases Disposal Committee dealing with the need for additional voluntary hospital accommodation, the inquiry now being conducted by the Voluntary Hospitals Commission: and the bequests of the late Mr. and Mrs. Wells.

Recommendations of the Ambulance Cases Disposal Committee.

The Management Committee asked the views of the Distribution Committee on the recommendation—

That King Edward's Hospital Fund, in making its annual grants, should take into consideration whether hospitals which deal with cases of accident or sudden illness occurring in streets or public places provide (*a*) a reasonably sufficient number of beds for such cases, (*b*) a reasonably sufficient number of observation beds or beds attached to the casualty department, in order to avoid, as far as possible, transfer to another institution of any patient whose condition might be likely to be prejudiced by such transfer.

The Distribution Committee have expressed their willingness to carry out this recommendation and have asked the hospitals for particulars of their available bed accommodation under these heads, and for their views as to its adequacy. The Ambulance Cases Disposal Committee, in their report, referred to the fact that most of the cases of alleged unnecessary or injurious transfer of patients had been reported from Lambeth. They associated this fact with the general shortage of voluntary hospital beds in South London, where King's College Hospital has only been able, since the war, to keep open 226 beds for ordinary patients out of 388 provided in 1913 for the specific purpose of reducing that shortage. The opinion expressed by the Ambulance Cases Disposal Committee in March was strengthened in April by the occurrence of two further cases of transfer from King's College Hospital for want of beds. The Distribution Committee are accordingly paying special attention to the question of the supply of beds for accident cases in South London, and particularly at King's College Hospital. The Management Committee invited the observations of the police and ambulance authorities on the recommendation—

(*a*) That it be represented to the police and ambulance authorities that no institution which is not equipped for the reception and treatment of serious cases of accident or illness should be retained on the list of institutions to which ambulance cases should in the first instance be taken.

(*b*) That it be suggested to the authorities that in drawing up the list of such institutions the coöperation of the Ministry of Health be sought in the case of infirmaries, and of King Edward's Hospital Fund in the case of hospitals.

It will be noticed that this recommendation deals primarily with the provision of emergency treatment in the first instance, as distinct from the provision of beds, which is dealt with in the previous recommendation. The London County Council has concurred in both parts of the latter recommendation and has given directions for them to be carried into effect by the London Ambulance Service.

The Management Committee also considered a recommendation—

That it be represented to the Ministry of Health that in the case of street accidents or sudden illness brought to Poor-law institutions (including "removals" from the casualty department of a voluntary hospital): (*a*) no question of residence of the patient, or site of the accident, or site of the transferring hospital, should be raised prior to reception and treatment; (*b*) no such cases should be transferred to another institution if their condition might be likely to be prejudiced by such transfer; (*c*) the charge for treatment of such cases should be a common metropolitan one, and not fall on the union receiving and treating such patients; (*d*) such patients should not be subject to any disability arising out of technical pauperisation as the result of their reception and treatment.

These changes would remove certain difficulties which now sometimes prevent an accident case from being taken to the infirmary which lies nearest.

The Management Committee addressed a letter to the Ministry of Health, urging upon his consideration their view that these proposals should be the subject of early legislation or administrative action. In doing so, they drew the Minister's attention to a resolution passed on May 29th by a conference of representatives of Metropolitan Poor-law Boards of Guardians, endorsing generally the conclusions and recommendations of the Ambulance Cases Disposal Committee.

Need for Additional Voluntary Hospital Accommodation and the Inquiry by the Voluntary Hospitals Commission.

The Voluntary Hospitals Commission have been asked by the Minister of Health to make an inquiry into the extent of the additional voluntary hospital accommodation required in England and Wales and the best means of providing and maintaining it. The Commission have requested the King's Fund, as Voluntary Hospitals Committee for London, to issue a questionnaire to the hospitals of London, and to transmit the replies to the Commission with a general covering report. The report will be prepared by the Management Committee with the assistance of the Distribution and Hospital Economy Committees. It was already known to the King's Fund that numerous

schemes of extension or improvement, unavoidably postponed during the war and the subsequent financial crisis, had been and were being taken up by the hospitals themselves. Several have been completed, others are in hand, and others again have been passed by the King's Fund with a view to early action. The number of beds available at the hospitals on the books of the King's Fund has increased from 11,800 in 1913 to 13,400 in 1924, and the schemes now in hand or proposed would add another 1000 beds. During the last three years the hospitals of London, besides increasing their income from £2,430,000 to £2,850,000, adding £991,000 to their endowments, and obtaining more than £400,000 through the combined appeal, have received about £1,100,000 for extensions and improvements. A large sum is, however, still required to meet the capital expenditure on these schemes. The grants from the King's Fund in aid of such schemes were reduced to a minimum in 1921, and, although they have been again increased in subsequent years, they do not yet amount to the same proportion of the capital cost of the schemes, or of the total distribution by the Fund, as they did before the war. Additional income will also be required for the maintenance of the increased number of beds.

Bequests of the late Mr. and Mrs. Wells.

The Management Committee have had before them for some time the question whether the King's Fund could take definite action to help the hospitals to meet these needs. It so happened that in February last, just when the Ambulance Cases Disposal Committee was considering the connexion between the lack of sufficient accident beds and the general question of the shortage of hospital beds, particularly in South London, the King's Fund was notified that a large sum, estimated at more than £200,000, would shortly be received under the wills of the late Mr. and Mrs. Wells. The custom of the General Council, in dealing with legacies which it has power to spend, has usually been to invest part and distribute part. It would thus be consistent with previous policy if the King's Fund, having recently invested more than £1,100,000 from the bequests of Lord Mount-Stephen and Sir Thomas Sutherland, were to include the Wells legacies of £200,000 in the estimates of the amount available for distribution if required. This is specially the case when, as at present, the hospitals are faced with various exceptional needs, such as those mentioned above. The Management Committee accordingly consulted the Distribution Committee as to the best method in which, should the General Council approve, the Wells legacies could be used for this purpose, and have received from them the following statement:—

(i.) The Distribution Committee cordially support the suggestion that the Wells legacies should be used to assist the hospitals to meet special needs.

(ii.) The Distribution Committee are of opinion that the following method of applying the legacies, in whole or in part, could usefully be considered: (*a*) Assistance in the provision of additional hospital accommodation, including accommodation for accident cases, by grants towards capital expenditure on schemes of extension, or towards the reduction of deficits on schemes that have been completed, or towards the opening of beds in extensions that have already been provided but are not yet available for the patients for whom they were intended; (*b*) assistance towards schemes of improvement as distinct from schemes of extension; (*c*) increased grants to maintenance, including the maintenance of additional beds.

(iii.) In connexion with the provision of additional accommodation, including accommodation for accident cases, the Distribution Committee consider that there is urgent need for a further step towards the completion of the full service of King's College Hospital, where 162 of the 388 beds provided in 1913 by the removal to Denmark Hill are still not available to meet the shortage of beds in South London.

(iv.) The Distribution Committee think that, when they are preparing proposals for the application of these exceptional legacies, they will sometimes find it desirable that definite conditions should be attached to the grants—e.g., a condition that beds should be opened, or that beds should be reserved for accident cases, or that a scheme should be put in hand at once, or that the balance required, or a specified part thereof, should be raised. In some instances it would be an advantage that the Committee should be in a position to make a definite arrangement in advance with the hospital concerned. In suitable cases the exceptional grants might be used in this way to stimulate fresh activity on the part of hospitals.

(v.) Under the scheme outlined above, the whole amount would not be distributed at once. For example, grants for the opening of beds would be spread over a period of years; grants in aid of extensions and improvements need not be wholly confined to schemes already submitted; and part of the sum received from the legacies might be retained for the present in case new needs should arise.

In conclusion, the Management Committee approve generally of the proposals contained in the report.

Lord Stuart, in moving the adoption of the recommendations, said that the replies to the interrogations issued at the request of the Hospitals Commission gave evidence of the care which the hospitals were giving to the answers. Lord Revelstoke, honorary treasurer and chairman of the Finance Committee, seconded the proposal and was supported by Sir Cooper Perry, chairman of the Distribution Committee, and Sir William Collins, chairman of the Ambulance Disposal Committee. The motion was carried unanimously.

The Prince of Wales, after reading a letter from the King in which His Majesty endorsed the action of the Management Committee and expressed his gratification that the Fund should be in a position to afford at the present time special assistance to the voluntary hospitals, continued:—

"I wonder if there is anyone who still thinks the voluntary hospital system is dead, or dying. If so, let him look at the facts and figures before us to-day. Even in 1920, when the crisis was at its worst, the hospitals of London had an income of £2,400,000 as against £1,500,000 before the war. Since 1920 their income has increased to £2,850,000, without counting any of the £400,000 raised by the Combined Appeal; £990,000 has been added to their endowments; and £1,100,000 has been received for extensions and improvements. This means that, over and above their annual income, which last year was nearly twice what it was before the war, the voluntary hospitals, in London alone, have received in three years two and a half millions for special purposes. And this does not include the additions, during this same period, to the investments of the King's Fund itself. Then, again, there are 1600 more beds than there were before the war, and the extension schemes now in hand, or proposed, would add another 1000. This is not decay or death. It is life—and very vigorous life. More than that, it is growth. The hospitals are not satisfied with merely making both ends meet—difficult as that seemed a short while ago. They are constantly expanding in response to the ever-growing need for better equipment and more beds. Even during the crisis they never quite stopped doing this. Extensions and improvements, like so many other good things, were delayed by the war, but they still went on here and there. After the war new schemes came with a rush; so much so that the King's Fund had sometimes to act, much against its will, as a restraining force; taking the view that, except in specially urgent cases, the maintenance of the hospitals, as a whole, must have precedence over appeals for capital expenditure in any particular instance. The distribution of the surplus funds of the Red Cross Society and the Order of St. John, through the King's Fund, helped a large number of schemes. Nevertheless, a good many had still to be postponed.

But gradually the position has changed. With the aid of the temporary Government grants and the Combined Appeal, most of the deficits are paid off. Income of all kinds, voluntary contributions, patients' payments and workmen's collections, the ordinary distribution of the King's Fund, all are increasing. There are, unfortunately, some institutions still in grave financial difficulties. And the hospitals are all faced with the increased expense involved in new methods of medical diagnosis and treatment. But, taken as a whole, they have been able to turn their attention more and more to extension. The King's Fund last December increased its grants in aid of schemes. The public, which by its gifts helped to save the hospitals in 1922, is now, with equal generosity, supporting their new ventures. More than one large appeal for special objects, such as endowment, reconstruction or extension, has in recent months been conspicuously successful."

Continuing, the Prince said now that the Council had approved the general principle, the Distribution Committee could prepare plans for the actual use of the money. They had already collected a good deal of

information about the most urgent needs of the hospitals. One of these, the need for additional accident beds, especially in South London, had been brought before the public more than once in recent months, and it was gratifying to hear from Sir Cooper Perry that the decision of the King's Fund would enable immediate action to be taken to meet that need. The Distribution Committee had also before them a long list of schemes of extension and improvement, and there were other special needs. The King's Fund was making its special contribution to the forward movement, but it could not be, and did not want to be, a substitute for that individual interest and individual effort which, under the voluntary system, was the source of life to the individual hospital. The King's Fund had its own particular function. It was concerned with the needs of London as a whole, and with the relative needs of the different districts. It had exceptional means of comparing the circumstances of the various hospitals. And where a donor or a testator was not specially interested in any one institution, but desired to benefit the hospitals of London generally, or to have his gift distributed in proportion to needs, he could, if he so wished, avail himself of the facilities of the King's Fund.

The meeting closed by a vote of thanks to the Prince of Wales, moved by Lady Ampthill and seconded by the Chief Rabbi, which His Royal Highness briefly acknowledged.

THE NUTRITION OF MINERS AND THEIR FAMILIES.

IN the autumn of 1922 considerable public attention was directed to the state of affairs in the coal-mining industry. For various reasons of economic sort the prosperity of persons employed in this industry was greatly depressed, and it was freely stated that the available income of families dependent upon the mines for subsistence was insufficient to provide the bare means of life. Questions were asked in the House of Commons, but no detailed evidence as to the precise domestic circumstances of the miners' families was available. The Committee on Quantitative Problems of Human Nutrition appointed by the Medical Research Council decided, with the financial support of the Department of Mines, to investigate the matter, and the result of this investigation has now been published.[1]

The food requirements of man are first set out and a provisional assessment is made of the needs of the coal-miner. The study of family budgets forms the next section of the report, with an account of the method of inquiry pursued by the Committee. A critical discussion follows, and then a tabular statement of the height and weights of the children of miners. Finally, certain general conclusions are reached which are set out below in the words of the Committee:

General Conclusions.

The material upon which this report is based is too scanty to authorise any sweeping conclusions, but is, in our opinion, so accurately compiled that a high degree of probability attaches to some inferences, but before noting them the following points must be borne in mind and any conclusions must be interpreted in their light.

(*a*) Many of the families investigated were burdened by debt, the aftermath of the strike, and therefore a wage, which might have been sufficient to provide an adequate supply of food, was so reduced as to make living difficult.

(*b*) In some of the families, at least, the amount of money allowed to the wife, for the purchase of food and the household expenses generally, bore no relation to the wage earned, and it is not known in these cases exactly how much was actually earned.

(*c*) It must again be emphasised that, when comparisons are made between the physical condition of the miners' children and those of the general average for the county area, the numbers of miners' children studied were very small. In some groups the numbers for comparison were as low as two. Another point in this connexion on which we have no direct evidence is whether or not there is any hereditary difference as regards physical condition between the average mining class and the average population of the areas investigated.

Subject, then, to these limitations we conclude:—

1. That during the period of observation (December, 1922, to March, 1923) the average consumption of food in one district, Derbyshire, was sufficient to maintain healthy existence, and, in that district, the children of the miners whose family diets were studied differed in respect of height and weight in no significant way from the average of the whole county.

2. That the diets of the four other districts, and in particular of the Durham area, if the energy requirements in these areas be comparable with those of Derbyshire, fell somewhat below the standard generally accepted as satisfactory. In Durham the children measured were in respect of weight slightly below the county average.

3. That quite apart from differences of income there are variations of diet from district to district and within each district which suggest that housewives could be helped to secure a more adequate return for their expenditure by a better dissemination of knowledge both of the economic and hygienic aspects of diet. There is evidence that in the districts where bread is baked at home the diets are more satisfactory.

4. The absence of a definite correlation between the weights of the children and the calorie intake seems to indicate that factors other than diet, so far as examined in this report, influence the state of nutrition of these children.

5. That there is evidence which would suggest that the diets of families of which the mother had had training in domestic service are better than the average, but the evidence is not conclusive.

The personnel of the Committee upon Quantitative Problems in Human Nutrition responsible for this report is as follows: Prof. E. P. Cathcart, M.D., F.R.S. (chairman), Dr. Major Greenwood, Dr. Leonard Hill, F.R.S., Dr. A. W. J. MacFadden, Sir Thomas Middleton, Prof. D. Noel Paton, M.D., F.R.S., and Prof. T. B. Wood, F.R.S.

In tending their report, the Committee express cordial thanks to various medical officers of health who collaborated with them in this inquiry, and also high appreciation of the work of the field investigators. It is evident that there has been a close and harmonious coöperation between these workers and the staffs of public health departments, which is of happy augury for the success of other investigations which it may be found desirable to undertake in the future.

[1] Reports of the Committee upon Quantitative Problems in Human Nutrition. Report on the Nutrition of Miners and their Families. Special Report Series, No. 87, Medical Research Council. London: H.M. Stationery Office. 1924. Pp. 59. 1*s.* 3*d.*

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Medical Register and the Irish Free State.

THE Government of the Irish Free State has taken an important step to avoid the difficulties which had arisen in regard to the admission to the Medical Register of licentiates and graduates educated in the Free State. A Bill has been introduced, and rapidly passed through the Dail, authorising the General Council established under the Medical Acts to continue temporarily to exercise jurisdiction and authority under those Acts in respect of medical practitioners in the Free State. The Bill sets out that the General Council and the Branch Council are to have the same authority, and medical practitioners in the Free State the same rights, privileges, and immunities, and be subject to the same obligations as prior to the establishment of the Free State. The General Council and the Branch Council are to continue to be nominated, chosen, and elected in the same manner as heretofore. The Medical Acts are to continue to have effect in the Free State. The duration of the Act is one year from the date of its passing. The Bill passed rapidly through the Dail and has passed its second reading in the Senate without serious opposition. It is understood that, during the year's grace which this Bill will allow, the whole question will be thoroughly studied, and that the Government will then, after consultation with the medical profession, promote considered legislation.

Dedication of Queen's University War Memorial, Belfast.

The chief object of the visit of the Duke and Duchess of York to Northern Ireland was the dedication of the war memorial at the Queen's University, which took place on Monday, July 21st. The Duke and Duchess were received by a large assemblage fully representative of the University and the City of Belfast, and prior to the dedication ceremony received the honorary degree of LL.D. at the hands of the Chancellor of the University, Lord Londonderry. The war memorial stands in front of the principal entrance to the University. It consists of a fine bronze statue of a winged Victory, bearing in one arm the figure of a dying soldier and raising the other arm to uphold a crown of laurel. The pedestal of granite bears the names of 253 fallen Queensmen commemorated on attached bronze tablets. The work was designed by the late Sir Thomas Brock, and after his decease was finely executed by his assistant, Mr. Arnold Wright. The Chancellor of the University opened the dedication ceremony with a brief speech recalling the services of Queensmen in the late war, and the Duke of York then unveiled the memorial. Dr. Simms, M.P., principal chaplain to the British armies in France, pronounced the dedication, and a reveillé was sounded by four buglers, followed by a prayer. Numerous wreaths were placed at the foot of the pedestal of the memorial. After the ceremony the Duke and Duchess were entertained to luncheon in the Great Hall of the University by the Chancellor and Lady Londonderry. About 200 guests sat down, the company including the Governor of Northern Ireland, the Vice-Chancellor of the University (Dr. R. W. Livingstone, M.A.), and the Lord Mayor of Belfast. Replying to a toast, the Duke of York referred to some of the recent benefactions to the University, especially the foundation of Riddel Hall as a hostel for women students, and the new gates to the University, the gift of Mr. F. A. Heron, D.L.

Strike of Municipal Workers in Dublin and Suburbs.

A strike has taken place on very brief notice on the part of the municipal workers of Dublin and the adjoining townships. It appears that at a conference held recently between the several local authorities it was decided to recommend a reduction in wages of 6*s.* a week, beginning with a cut of 2*s.* on Sept. 1st. The recommendation of the conference had not yet come before the local authorities and no decision had therefore been made. On July 19th the workers withdrew from work. Several essential services are left derelict. Fortunately the drainage system can be carried on, though the sewage is discharged once again into the Liffey, as in the time prior to the construction of the Dublin main drainage system. Electricity has failed, however, both for lighting and for other purposes. Street cleansing is also stopped, as well as removal of house refuse. The city markets, through which all vegetables and greenstuff reach the consumers, may be stopped. The strike is certain to have its effect on the public health. The action of the workers in precipitating a strike on the eve of the Dublin horse show and the Tailteann games, for which the city has been long preparing, has roused much local indignation.

The late Dr. Arthur W. W. Baker.

The death occurred recently at his residence in Dublin of Arthur W. W. Baker, M.D., M.Dent.Sci. (Hon.), F.R.C.S. Irel., long regarded as the doyen of the dental profession in Dublin. He was 72 years of age. Having taken his medical degrees in Dublin University in 1875, he chose dentistry as his specialty. He was for many years one of the leading spirits in the management of the Dental Hospital of Ireland, and the foundation and success of the School of Dentistry attached thereto were mainly due to his activity and care. Some 20 years ago, acting under his guidance, Trinity College established a school of dentistry, and the first degree in dentistry conferred by the University was the Honorary Degree of Master in Dental Science conferred on Dr. Baker. He was closely associated with the Officers' Training Corps of Dublin University, and during the war he held the rank of captain in the Royal Army Medical Corps, serving for a time in the Dublin (83rd) General Hospital at Boulogne. He was a man of much general culture as well as of learning in professional matters. He was specially interested in music, and much of his leisure was spent in yachting.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Speech Pathology in Vienna: The First Congress.

THE first Congress of Speech Pathology was held in Vienna for three days in the early part of July under the presidency of Dr. Fröschels (Vienna), and was attended by laryngologists, speech-pathologists, and linguists from all parts of Europe, as well as by members of the Government, when discussions took place on the problems of normal and defective speech.

The rise of Vienna to be the centre of speech study began with the work of Prof. Brücke, the physiologist, who made the first accurate studies of enunciation. Under his successor, Prof. Sigmund Exner, the Academy of Sciences founded the first Phonogram Archiv. Two large speech clinics have been in existence for many years. The only society for experimental phonetics is that in Vienna, and with the recent opening of a laboratory for experimental phonetics there has been a revival of the opportunity to study the science.

The Congress was opened by Dr. H. Stern, director of Prof. Hajek's clinic for laryngology, who delivered a memorial address in honour of Gutzmann, the "father of voice and speech pathology." Dr. Fröschels then read a paper on aphasia, in which he stated that although it was not yet possible to localise with accuracy the various forms of this condition, careful training of the patient gave most excellent results, even in cases of long standing. An interesting discussion followed, in which Drs. Stojanovics (Jougoslavia), Bonvicini (Italy), Pappenheim and Richter (Germany) took part. Prof. Winkler (Vienna) then demonstrated the induction of aphasia in a young lady by means of hypnotism, and Drs. Allers and Freund emphasised the important part played by complicated mental processes in the act of "finding the word." Dr. Eliasberg (Munich) read a paper on methods of testing the intellect through the speech, and Dr. Stein (Vienna) dealt with the condition known as *dysarthria articulæ universalis*, or general stuttering.

Speech in Nervous Diseases.

On the second day Prof. E. W. Scripture (London) reported in brief the results of work done in London in this subject by means of recording and analysing speech in nervous diseases. By this method he established that the changes of speech in a disease or a lesion of any part of the nervous system showed an absolutely constant and unchangeable type for this part. The records of speech showed specific alterations in bulbar paralysis that did not occur in any other disease, and again there were specific alterations found in cerebellar troubles. The speech abnormalities in the case of a nerve lesion changed only progressively or regressively and never altered their type. In his opinion it was possible from the speech curves alone to diagnose such troubles as progressive bulbar paralysis, disseminated sclerosis, general paralysis, and epilepsy. Speech in idiopathic epilepsy had a peculiar character found in no other trouble, and this characteristic indicated that the condition was not a localised affection of the cortex, but a generalised anomaly of the constitution.

Stuttering.

On the second day Dr. Hoepfner (Saalfeld) opened a discussion on stuttering. He considered that the popular term "stuttering" had hindered research and treatment in this condition, as it did not give proper credit to the various ætiological factors, particularly those of pathological anatomy, which caused the defect. He believed that the majority of such cases must be termed "associative aphasia"—that is, a disturbance of the equilibrium of the psyche produced by the preconceived idea of being unable to speak correctly. This occurred generally at a very early age.

Prof. Scripture thought stuttering was an inferiority neurosis directed toward persons who could hear, and found support for his theory that the inferiority neurosis was due to diminished activity of the suprarenal cortex in the favourable results obtained by administering preparations of this part of the gland.

In the long discussion which followed Dr. Fröschels admitted the psychic factor, saying that many stammerers were "bullied" by the idea "I cannot speak." Dr. Hetsche and Dr. Gumpertz (Berlin) opposed the use of the term aphasia for this condition; but Dr. Stern believed that a large number of such affected persons suffered from a true "temporary associative aphasia," and he considered this condition was amenable to appropriate therapeutic measures. A number of papers dealt with the beneficial effects of special classes for children with speech defects, where they were segregated from normal-speaking pupils. Prof. Hajek gave an interesting paper on the voice, speech, and music of wild tribes, illustrated by a number of gramophone records.

On the third day of the Congress the subject dealt with was

Diseases of the Voice and their Cure.

Dr. Stern opened the discussion with a very lucid and exhaustive paper. He explained the condition of phonasthenia (functional tiredness and weakness of the voice), and his methods of treating the voice of singers. He strongly advocated "washing out the larynx" with warm physiological salt solution. The phonetic laboratory under Dr. Stern in Prof. Hajek's clinic made a special point of studying troubles of the singer. Several forms of treatment were demonstrated. Although this subject was of greatest importance for large numbers of singers and vocal students, he said, it fell outside the interests and knowledge of the professional laryngologists, and could be pursued only by the special type of physician who was both a laryngologist and a voice specialist.

Of the ground covered by other papers read at the third session a brief résumé only can be given. Mr. Brömme (Frankfort) explained his methods of developing the voice; Dr. Demetnades (Athens) gave an account of the relationship between the control of the circulation by the sympathetic nervous system, the resonance of the skull, and the formation of the voice; Dr. E. Richles showed the importance of experimental phonetic methods in historical ethnographic researches; Dr. Wilheims spoke on the value of the speech as a factor in individual psychology; and Dr. Fröschels and Dr. Frajan recorded some experimental observations made during the teaching of speaking. It was resolved to present a more detailed report on this subject at the next Congress, which will be held in two years' time. At the end of the session the "Logopedic and Phoniatric Society" was founded, Prof. Scripture being elected president, with Dr. Stern, Dr. Fröschels, Mr. Rothe, and Dr. Hoepfner as members of committee.

Demonstration of Stomach Speech after Laryngectomy.

As a final act of the Congress a demonstration of patients and apparatus at the phonetic department of the clinic for laryngology was given.

Dr. Stern showed four patients: (1) A woman in middle life spoke distinctly in short sentences with a scratchy kind of voice. On lifting a neck ornament she exposed the opening into the trachea through which she breathed. Dr. Stern explained that she had been taught to swallow air into the stomach before each sentence, and to speak by pressing this air out against resistance at the top of the œsophagus. The vibrations at the opening of the œsophagus produced the tone, and the air from the stomach supplied the speech organs for enunciation. (2) A motor-car dealer in excellent health who could be heard to swallow the air before each sentence. He spoke fluently and loudly, and stated that he talked without any effort all day long. (3) A man in middle life who talked without difficulty and who could sing in a crude manner over two octaves. (4) A lady who had only been a month in training and had got only far enough to do syllables well.

The education in stomach speech requires training for one or two years. It succeeds well with many patients but not with others. The teaching of the stomach speech requires skill and practice on the part of the physician. The technique of the operation for laryngectomy and of the after-care has been so wonderfully developed in Prof. Hajek's clinic that the mortality is very small.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Meeting of the Aerzte-Vereinsbund.

THE Aerzte-Vereinsbund (the Association of German Medical Societies), a body dealing not with scientific but with professional questions, held a general meeting recently at Bremen. This was the first general meeting after an interval of three years, during which time the financial condition of Germany and of the medical profession necessitated a lapse of the annual meetings. The meeting was attended by 429 delegates of local medical societies, and first discussed the question of courts of honour. These courts are not instituted by law throughout the whole of Germany. In Prussia and in some of the Federated States they are so established, but they are not legal in Bavaria, Wurtemberg, and Oldenburg. It has been suggested in Parliament by the Social-Democratic party that they should be completely abolished, but the Prussian medical chambers with which the courts are connected protested unanimously against this suggestion. After a long discussion the association agreed almost unanimously that the courts of honour ought not only to be maintained where they are already working, but that they should also be introduced into those of the German Federated States where they did not already exist. The association also desired that medical men who were under the disciplinary power of the Government but not under that of the medical courts of honour (such as medical officers of health, army and navy medical officers, and university teachers), should not be exempted from the jurisdiction of the courts. As hitherto, in cases of unprofessional behaviour the courts could only fine a defendant and withdraw his right of voting for the medical chamber, a purely nominal penalty to medical men of a low professional standing. The meeting proposed that the courts be authorised to exclude a medical man from practice in cases of grave misdemeanour. Concerning the workmen's insurance laws, it was proposed at the meeting that compulsory insurance against illness ought to include only persons earning less than M.2400 (£120) per annum, and that no person should be authorised to remain a voluntary member of a sick-club under the Workmen's Insurance Act if his earnings were more than M.4000 (£200) per annum. The meeting then discussed the question of life insurance of the members of the profession themselves and their insurance against accidents, and agreed that such insurance should be compulsory. The amalgamation of the association with the Leipziger Verband was declined, although both societies have worked together, and will continue to work together in matters concerning the general welfare of the profession.

A Leech in the Larynx.

Dr. Messinger, a German medical man residing in Veles, Macedonia, reports a case in the *Medizinische*

Klinik where a woman in drinking water from an earthen pot suddenly felt a foreign body in the larynx, which gave rise to severe fits of coughing with hæmorrhage and dyspnœa. Neighbourly attendance proved useless, and six days later she was brought to the doctor in a very anæmic and weak condition. Dr. Messinger ascertained that the larynx and its surroundings were greatly swollen and inflamed, and covered with hæmorrhagic spots; by laryngoscopy the head of a leech could be seen in the rima glottidis attached to one vocal cord. Under local cocaine anæsthesia Dr. Messinger tried to seize the head of the animal with forceps, but did not succeed. He then touched its head with a concentrated solution of kitchen salt, with the result that the leech loosed hold of the vocal cord and disappeared into the interior of the larynx, whence it was discharged through the rima glottidis by a very strong attack of coughing. It is remarkable that the leech managed to remain in the larynx for six days undisturbed by the violent coughing.

Visa to Passports of Foreign Patients.

The Committee of the Medical Chambers have informed the Government that complaints have been made by foreign patients, on the ground that German consulates abroad have often declined to visa passports of foreigners desiring to go to German spas or to consult German specialists. The Foreign Office has answered that they had instructed the German consulates abroad to be as liberal as possible in the interest of German spas and medical men, but that such liberality has been greatly abused, especially in certain Eastern countries. In one of the consulates in the East it was stated that of 54 visas given for a visit to German spas in three cases only did the supposed patients really go to the health resort. Many undesirable foreigners try to use such visas to secure a prolonged stay in Germany, sometimes for illegal business. If the visa is declined they approach the representatives of the profession and complain of not being admitted to Germany. Giving visas indiscriminately to every alleged patient has therefore been discontinued in certain Eastern countries where the abuse has been in evidence.

Spread of Tuberculosis in Children.

Dr. Thinius, physician to a dispensary for tuberculous children, has recently carried out an investigation into the presence of tuberculosis in school-children. He selected for the investigation the town of Stolp, a country centre in Pomerania, with 35,000 inhabitants, where the housing accommodation was somewhat unsatisfactory. As the parents had been informed by the local press and by lectures of the importance of the investigation, Dr. Thinius was allowed to examine 4400 of 6900 school-children. Pirquet's reaction was used as a test for the presence of tuberculosis. It was found that of the 4400 children 39 per cent. gave a negative and 61 per cent. a positive reaction. A noteworthy fact was that in college youths of the relatively better-off class a positive reaction was just as frequent and sometimes even more frequent than in the pupils of the elementary schools of the town. The school for feeble-minded children showed the highest percentage of positive reactions—viz., 87. The average percentage of positive reactions increased with the age, being 47 at the age of 6 years and 65 at the age of 16.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL.—The eighty-fifth annual report of this institution shows that the total income for the year 1923 was £4581, almost identically the income for the previous year. The total ordinary expenditure amounted to £3505, as compared with £3532 during 1922. The number of patients attending the out-patient department was 3667, and the total number of in-patients was 693; practically speaking, in both categories males and females were almost equally divided. The report contains tables setting out the number of cases treated for each disease coming within the special department with which the hospital deals.

Medicine and the Law.

The Costs in the Harnett Case.

Mr. Harnett, the plaintiff in the action against Dr. C. H. Bond and another, was unsuccessful in an application to the Court of Appeal asking that an order of the court as to costs should be stayed pending an appeal to the House of Lords. When the Court of Appeal, in May, allowed the appeal of Dr. Adam and ordered a new trial of the action against Dr. Bond, the usual order was made for the costs of the original action and of the appeal to be paid or provided for by Mr. Harnett before the taking of any further proceedings. It was in order to obtain a stay of this order as to costs, pending an appeal to the House of Lords against the judgment of the Court of Appeal, that the application referred to was made before the Master of the Rolls (Sir Ernest Pollock), Lord Justice Warrington, and Lord Justice Atkin. In giving judgment, without calling upon counsel for Dr. Bond and Dr. Adam, the Master of the Rolls referred to the order of the Court of Appeal as possibly inconvenient to the plaintiff, but as not rendering appeal to the House of Lords impossible. The argument on behalf of the plaintiff had shown no ground for the court exercising its discretion in the manner asked.

Manslaughter of a Child.

At the Central Criminal Court recently, the trial took place of C. W. Travis, an American subject, who has been stated to have had some medical training. He was indicted for murder and found guilty of manslaughter, having killed his own son, 10 months of age, by closing its mouth and nostrils with his hand when irritated by the child crying at night, his defence being that he thought he could induce sleep through exhaustion, following deprivation of air. Mr. Justice Shearman postponed sentence for a day, and then said that he found the problem of how to deal with the prisoner difficult. The jury had found that he had not intended to kill the child but had done so owing to a criminal impulse and with great cruelty. He had reports before him, as well as the evidence of Dr. H. A. Grierson, medical officer of Brixton Prison, to the effect that the prisoner was a man of exceptional intelligence, but not normal mentally and liable to criminal impulses. At the same time there was no question that as far as legal responsibility was concerned he was perfectly sane. His Lordship referred to the power of the Home Office to deal with the case after full consideration of the mental state of the prisoner and passed a sentence of penal servitude for five years. This appears to have been the best way to deal with the case in the circumstances. There was no evidence to show that Travis did not know the nature and quality of his act and that it was wrong, though he may have failed to appreciate the danger of depriving his child of life by the method that he adopted to keep it quiet when "teething." Having killed it he took the body in a bag to Birmingham and left it in the cloak-room at the railway station. His case will no doubt be considered before he undergoes penal servitude as a sane convict.

Dirty Ice-cream.

At Old-street police court recently a man was fined 40s., the maximum penalty, and one which the magistrate, Mr. Clarke Hall, observed was altogether inadequate, for manufacturing and storing "ice-cream" in a manner that exposed it to contamination. The compounding of the "ice-cream," which, as is well known, is mainly sold to children of the poorer class, was shown to have taken place in a back room and in a yard where there were found pails filled with the mixture in close proximity to an open dustbin and to refuse lying in the yard. In comment it may be observed that it is not unusual in Acts of Parliament concerning the public health to provide a penalty which may be

adequate for an offender who has transgressed for the first time and perhaps ignorantly or inadvertently, but that such penalties may not be enough to deter from perseverance in a profitable trade, constant inspection of which by the authorities is not easy. It was stated that this man had been warned not once but many times with regard to his dangerous methods. Dr. G. E. Oates, who, as medical officer of health for Bethnal Green, caused him to be prosecuted, is to be congratulated upon having succeeded, at any rate, to the fullest extent permitted to him by the law.

Cotton-Spinners' Cancer.

On July 26th Judge Mossop gave a written judgment in the important claim in Ashton-under-Lyne County Court[1] for compensation by an operative mule-spinner, Harry Whiteley, of Dukinfield, on whose behalf it was alleged that he had contracted epithelioma of the scrotum in the course of his employment with the Atlas Mill Co., Ltd., Ashton. The claim for compensation was made under Schedule 12 of the Industrial Diseases Act. The point at issue was whether the disease was contracted in the course of Whiteley's employment, and for which he should be compensated. The amount of the claim was £26 5*s*., being 15 weeks at 35*s*. per week. The judge held that the applicant was entitled to compensation for personal injury by accident or disease arising out of and in the course of his employment within the meaning of the Workmen's Compensation Act, 1906. He summed up the case as follows:—

(1) "He (the applicant) contracted the disease known as cancer of the scrotum.
(2) "This disease manifested itself for the first time whilst he was employed by the respondents who were his last employers.
(3) "His employment brought him into contact with a moving bar which caused constant friction close to the scrotum.
(4) "His employment involved his overalls near the scrotum being constantly sprinkled with mineral oil.
(5) "Mineral oil is an irritant.
(6) "The applicant, when at work, used overalls which could be easily penetrated by the oil.
(7) "The atmosphere in which he worked was humid.
(8) "Investigation has proved that cancer of the scrotum is quite common amongst mule-spinners.
(9) "Combine the facts number one to seven and the conclusion is irresistible that there is a connexion between the disease and the employment, and I so hold."

Judgment was given for £26 5*s*. and respondents to pay the costs, and that the order would be for a declaration of liability on the part of the employers for the disease at any time hereafter. The case was regarded as a test case, and much importance is attached to the judgment, having regard to the fact that many more claims may depend on it.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. H. A. Browning is placed on Retd. List at own request.

Surg. Lts. to be Surg. Lt.-Comdrs.: A. W. Cocking and W. E. Heath.

ROYAL ARMY MEDICAL CORPS.

TERRITORIAL ARMY.

Maj. W. Haig resigns his commn. and retains the rank of Maj. with permission to wear the prescribed uniform.

Capt. H. M. Anderson (late R.A.M.C.) to be Capt.

Lt. D. J. Davies to be Capt.

Capt. C. D. Walker to be Lt. and relinquishes the rank of Capt.

D. P. Levack, J. A. Stobbs, and T. H. Sansome to be Lts.

INDIAN MEDICAL SERVICE.

Lt.-Col. Chintaman Ramchandra Bakhle to be Col.

[1] See THE LANCET, April 12th, 1924, p. 773.

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS.

The quarterly meeting of the committee was held at 11, Chandos-street, on July 18th, when Colonel Mansell Moullin presided. The treasurer's quarterly statement was of a satisfactory character. In the Benevolent Branch five applications for help were renewed for a further year, the total amount being £278. In the Relief Branch one new case and four old cases were renewed, and grants amounting to £130 were renewed. One new case was considered, and the school fees, amounting to £30, were granted. The next meeting of the committee will take place in October, when the majority of the cases are again reviewed.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal health statistics for 1923 of three county boroughs in the Lancashire and West Riding industrial area. Some of the characteristic features of a "mill" town are illustrated in the table—viz., a low birth-rate, a high neonatal and infant mortality-rate, and high death-rates from childbirth and respiratory diseases:—

Name of county borough.	Estimated mid-year population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Blackburn ..	129,000	16·2	13·4	1·0	1·4	3·6	47	100	6·7
Stockport ..	125,700	17·6	12·7	1·2	1·3	3·0	34	92	4·1
Halifax	99,840	15·2	13·8	1·0	1·5	3·0	47	90	6·6

Blackburn.

In his very complete account of the activities of the Blackburn Health Department for 1923, Dr. W. Allen Daley has noteworthy events to record, while we mentioned in THE LANCET of July 19th (p. 127) the general lessons in relation to the cotton industry. In May an empty pavilion at the Corporation Hospital, with a playing field adjoining, was opened as an open-air residential school for 20 pretuberculous children with very successful results. Accommodation has also been made at the hospital for a day open-air class. In February an X ray apparatus was installed at the hospital, and has been found very useful in the diagnosis of suspected cases of tuberculosis of the lungs and thoracic glands, and also in gauging the effects of pneumothorax treatment, which was tried for the first time during the year, with encouraging results. In March an orthopædic clinic was begun. Monthly sessions are held by Dr. W. Briggs. Of the 75 patients dealt with, 25 were admitted to the Queen's Park Hospital of the guardians for operative treatment through the Crippled Children's Aid Society, which also provided extra nourishment, splints, and surgical appliances, and sent children to their Holiday Home.

In November the Springfield Maternity Home was opened. This is the successor to a six-bed home, opened by the corporation in August, 1921 (in coöperation with the Blackburn District Nursing Association), the success of which indicated that a long-felt need was being met. The new home was adapted from a large house in the best part of the town with nearly two acres of grounds, and has accommodation for 20. In view of the high maternal mortality from childbirth a special effort was made at the end of the year to arouse the interest of the midwives in antenatal work by the issue to them of certificates of efficiency. During 1923 only 97 mothers attended the antenatal clinic, and of these one was

sent by a doctor and four by midwives. The results of the new effort is shown by the fact that there have been 78 new antenatal cases in the first quarter of 1924. A special clinic has been established during the year at a maternity and child welfare centre for the treatment of infants infected with venereal diseases, and their mothers. The clinic is conducted by Dr. Ella G. F. Mackenzie. Dr. Daley records the fact that the 208 blind persons in the town do not include a single blind child under 5 years of age, although 35 of the adult blind have been blind from infancy. In April a week's intensive campaign of publicity regarding venereal diseases took place and was a great success, large audiences being obtained. As regards education on health, Dr. Daley has two suggestions to make. First, there is a great lack of suitable cinematographic films on health subjects, and he thinks some central body should concern itself with the production of such. Secondly, he thinks such a central body might produce a monthly or quarterly health bulletin, to which local additions might be made, as is done in the case of parish magazines.

Considerable efforts were made for the improvement of the milk-supply. The second clean milk competition for Alderman Fielding's Silver Cup was held from January to March. There were six entrants, all of whom reached a satisfactory standard. The unprogressive farmers held aloof or were actively hostile. Samples of milk from farms inside and outside the borough were examined for dirt. Of "inside" samples, 14 per cent. were grossly contaminated, and 8 per cent. were filthy. Of outside samples, 36 per cent. were grossly contaminated and 6 per cent. were filthy. Five out of 89 samples examined were found to contain living tubercle bacilli.

Stockport.

Dr. Arthur G. Jenner records two small outbreaks of scarlet fever. The one occurred in connexion with a private school, and probably originated with a mild unrecognised case of the disease. The other was traced to a milk-supply, the son of the milk vendor being among the patients. The milk in question came from an outside farm on which no source of infection was discovered, but there was a simultaneous outbreak in a neighbouring town, for which milk from the same district appeared to be responsible. The building of new houses shows some improvement. In 1923 176 new houses were built, and 125 more were in course of erection at the end of the year. The number built in previous years were: in 1918 and 1919, none; in 1920, 24; in 1921, 131; and in 1922, 71. The inspector found 21 tuberculous animals in the cowsheds, which were surrendered and destroyed. The examination of the mixed milk from six farms revealed one tuberculous sample and led to the destruction of one cow. No less than 32 of the 146 cases of tuberculosis which terminated fatally were unnotified at the time of death. The Stockport Corporation contract for beds at various sanatoriums —viz., 16 beds in the Cheshire Joint Sanatorium (recently opened), five beds at Wensleydale, and three at the Shropshire Orthopædic Hospital. They are also helped by the George Fearn Trust, which provides ten beds at the Ormerod Home, St. Anne's-on-Sea, for weakly and pretuberculous children. The same trust provides accommodation for weakly children at several farms in the vicinity of Stockport, with very beneficial results.

Halifax.

Dr. Cyril Banks discusses the high mortality from childbirth in view of Dr. Janet Campbell's recent report showing the bad position occupied by Halifax. He thinks that the increased facilities for admission to St. Luke's Maternity Home and the new maternity wards of the Royal Halifax Infirmary will be a step in the right direction, *provided* adequate medical supervision during the months of pregnancy can be insisted upon. He suggests that attendance at the antenatal clinic should be made a condition of admission to these lying-in wards. Such a condition is, we believe, already in force in the case of the lying-in wards of St. Thomas's and other hospitals with beneficial results. The Ministry has been asked to sanction the appointment of two additional health visitors in order to allow of increased antenatal visiting, better supervision of children from 1 to 5 years of age, an extension of tuberculosis visiting, and the transfer of the supervision of the mentally defective from the sanitary inspectors to the health visitors. Sanction has, however, only been given for one additional appointment. Tuberculosis after-care work is carried out in Halifax by a committee of the council of social welfare.

In her report on maternity and child welfare work, Dr. Alice Latchmore refers to the "handy-woman" difficulty. She also mentions that one "bona fide" midwife was removed from the Roll and a trained midwife censured for failing to call in medical aid in cases of ophthalmia neonatorum. Breast-feeding appears to be increasing; 60·5 per cent. of infants were breast-fed for six months in 1923, as compared with 54 per cent. in 1922. Dr. Banks is unable to report any appreciable improvement in the milk-supply. None of the special grades of milk designated in the Order of 1922 is on sale in Halifax. Halifax is evidently attacking the industrial smoke problem seriously, and a very interesting report is submitted by the smoke inspector, Mr. Herbert G. Clinch, whose book on the subject was recently reviewed in THE LANCET. The policy adopted in Halifax which is producing such satisfactory results is one of coöperation with owners and firemen, and many of the firms who have availed themselves of Mr. Clinch's expert advice have not only done away with the smoke nuisance, but have had the satisfaction of realising a considerable saving in fuel costs.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 19TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week, namely:—Small-pox, 42; scarlet fever, 1333; diphtheria, 694 (as against 654 of the previous week); enteric fever, 91 (as against 126 of the previous week); pneumonia, 570 (as against 497 of the previous week); puerperal fever, 26; cerebro-spinal fever 8; acute poliomyelitis, 27; acute polio-encephalitis, 1; encephalitis lethargica, 81 (as compared with 81 of the previous week); dysentery, 2; and ophthalmia neonatorum, 109. There were no cases of cholera, plague, typhus, or continued fever notified during the week. Of the 42 cases of small-pox, 8 were notified from the county of Derby (Chesterfield 3, Chesterfield R.D. 5), 1 from the county of Gloucester (Gloucester), 12 from Northumberland (Ashington), 4 from the county of Nottingham (Hucknall 3, Mansfield 1), 8 from Yorks, North Riding (Middlesbrough 5, Eston 3), 5 from Yorks, West Riding (Rotherham 4). Of the cases of encephalitis lethargica, 11 were notified from the County of London (Bermondsey 1, Bethnal Green 1, Camberwell 1, Greenwich 1, Hackney 1, Kensington 1, St. Marylebone 1, Shoreditch 2, Stepney 1, City of Westminster 1), 9 from the county of Durham (Sunderland 3, Sunderland R.D. 2), 14 from the county of Lancaster (Liverpool 5, Manchester 4), 8 from the county of Warwick (Birmingham 7, Nuneaton 1), 4 from Yorks, West Riding (Sheffield 2), and 1 from the city of York.

Deaths.—In the aggregate of the great towns there was a decrease of 174 in the total deaths for the week under review. In London the number of deaths from all causes decreased from 763 to 752, while the deaths from diphtheria numbered 8, as compared to 7, 5, and 9 in the preceding three weeks.

BLIND MASSEURS.—The fifth annual report of the Association of Certificated Blind Masseurs records continued progress during the year which ended on June 30th, and the executive council gratefully acknowledge the help which they have received from the President, Sir Robert Armstrong-Jones, from St. Dunstan's Hostel, and from the National Institute for the Blind. The Association now has 173 members, composed of 92 blinded soldier masseurs, 38 civilian masseurs, and 43 masseuses. They are practising in 42 districts of London, 72 provincial towns in England, Wales, Scotland, and Ireland, and in some of the principal towns in Australia, New Zealand, Canada, South Africa, and South America. The address of the Association is 224, Great Portland-street, London, W. 1.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT BRADFORD.

(*Continued from p. 192.*)

REPRESENTATIVE MEETING.

SATURDAY, JULY 19TH.

HOSPITAL POLICY OF THE ASSOCIATION.

As briefly noted in our report last week the afternoon session of this day was occupied with a momentous debate on the policy of the Association in regard to remuneration of the medical staffs of voluntary hospitals. It will be remembered that the subject was fully discussed at the representative meeting in 1923, when a motion to postpone decision was proposed by a member of the Council and passed by a small majority. The subject was now reintroduced on a motion by Mr. N. BISHOP HARMAN, (late) Chairman of the Hospitals Committee, to rescind para. 10 of the scheduled hospital policy as no longer applicable, and to substitute a new form of words fitting the new situation. The old paragraph runs:—

> Gratuitous contributions to hospitals by employers of labour or by employees should not be treated as the payment of premiums for insurance against the cost of maintenance and medical treatment for sickness or accident, nor as entitling the contributors to claim hospital treatment either for themselves or for persons nominated by them, but as charitable contributions to be expended at the discretion of those to whom the management of the hospital is entrusted.

Mr. Harman, on behalf of the Hospitals Committee, now proposed to substitute the brief declaration:—

> Contributions to hospitals by employers of labour or massed or periodical contributions by employees should be considered as contributions for services rendered or to be rendered.

Mr. Harman, in moving the resolution, spoke of the increasing interest which was being taken in hospital administration, as shown by the steady flow of inquiries he received. Recently they had been working in coöperation with the British Hospitals Association. During the past year a questionnaire had been issued to 912 hospitals in England and Wales in the following terms:—

Staff Fund Questionnaire.

1. Does the hospital enter into arrangements for the treatment of State, municipal, and similar patients—e.g., Ministry of Pensions, War Office, Board of Education, Ministry of Health, Admiralty, municipal or other local authority?
2. Do the members of the medical staff receive any form of remuneration in respect of above? If so, in what form? (*a*) Directly from the authority concerned? (*b*) Honorarium? (*c*) Staff fund?
3. Does the hospital receive payments from employers of labour, approved societies, or insurance companies in respect of patients?
4. Do the members of the medical staff receive any form of remuneration in respect of above? If so, in what form?
5. Does the hospital receive payment through a contributory scheme in which there is a stated return—e.g., contributory insurance scheme?
6. Do the members of the medical staff receive any form of remuneration in respect of above? If so, in what form?
7. Does the hospital receive payment through a contributory scheme in which there is an implied return—e.g., workers' mass or periodical contributions?
8. Do the members of the medical staff receive any form of remuneration in respect of above. If so, in what form?
9. Is there any system of inquiry into the means of each patient?

Nearly one-half of the hospitals had responded with information, from which it appeared that (1) of 237 hospitals entering into arrangements for the treatment of State, municipal, and similar patients, in 73 per cent. some remuneration was being paid to the medical staff; (2) of 217 hospitals receiving payments from employers of labour, approved societies, or insurance companies, in 7 per cent. some remuneration was paid; (3) of 62 hospitals receiving payments through contributory schemes with stated return, in 11 per cent. some remuneration was paid; (4) of 110 hospitals receiving payments through contributory schemes with implied return, in 11 per cent. some remuneration was being paid to the medical staff. Taking the four categories together, the inquiry showed that in 25·6 per cent. of hospitals some form of pecuniary recognition was already being made to members of the medical staff.

Capital Value of Staff Services.

The Hospitals Committee, Mr. Harman went on, desired to find conditions that would cover all circumstances, from those of the little cottage hospital to those of the teaching hospital. The keynote of their policy was that it was never in the imperative mood; it was always in the persuasive mood. When the policy of the Association was expounded to hospital administrative officers he found that they were not in the least hostile, but recognised that the principles were fair and just, although at the moment funds might not permit of any such change. The work of hospital staffs was often eulogised, but few people, he thought, fully realised its value to the community at large. A former chairman of that representative meeting calculated that at his hospital at Cardiff the work of the staff was worth £350,000 a year to the community; on the same basis the cash value of the work of the medical staffs of hospitals in England and Wales worked out at £54,000,000 a year. His belief was that voluntary hospitals to-day were better than ever they had been, and that they were destined to be better still. The Association was striving to secure a succession of men, who would carry on the work as their fathers did. He reminded them of the "bidding prayer" heard when the Association met at Cambridge, and said he would like to make a medical version of it: "That there may never be wanting a succession of skilful and devoted men to serve God and the nation in the hospitals of this country, let us work to establish a sure foundation and defence for the generations that are to come." It was wrong that large sums paid to hospitals by friendly societies and large industrial undertakings should come in under the old para. 10. Para. 10 as it stood was effete, and should be replaced by something that met the situation to-day.

A Vote on the Principle.

In the discussion that followed the Chairman allowed individual members a very wide liberty, as he said, "to let off steam." It was argued on the one side that to pass this resolution would make difficulty by involving medical staffs of hospitals in a definite contract which they would be bound to fulfil; that the staff under the voluntary system could not expect all the advantages of State or municipal officers ("if you want salaries say so, but you will cease to be honorary officers"); that in Scotland, at all events, there was no lack of competition for honorary positions, successful applicants well knowing that in the fulness of time there would be a much larger return than in general practice. On the other side it was pointed out that voluntary hospitals now contained only 5 to 10 per cent. of the class for whom they were originally intended; that when a business firm contributed £1000 a year to a hospital it meant "we expect you to look after our staff"; that five guineas a week was now quite a usual charge to hospital patients, and that working men when they realised the situation would themselves prefer to pay the staff a fair wage for a fair day's work. All that could be said on the one side or the other was said and well said. The voting on the resolution was taken by roll-call, when there were 87 ayes, 19 noes, and 12 abstentions. The requisite two-thirds majority not being obtained, the Chairman stated that the motion was a resolution by the Representative Body and not a declaration of policy of the Association.

Taxing of Massed Contributions.

In proposing the next resolution Mr. HARMAN asked the meeting to bear in mind the various categories in which payments received by hospital

authorities on behalf of patients were made. The representative meeting had already defined its policy in regard to contributions received under contract between the hospital and an employer (the State, a statutory authority, or an insurance committee) on behalf of persons for whom it was responsible. That was the highest form of arrangement by which payments were made to a hospital. A second form was where a third party contributed towards treatment without actual contract. A third form was where the patient or his friends paid for what was done for him. It had been agreed times out of number that when there was a contractual arrangement of the first category some portion of that money should be credited to the staff, and it had also been agreed that this was to be done through the staff fund. The position was not quite so clear as to how contributions made by approved societies or contributory schemes should be treated. Several members of his committee were in favour of the recognition of staff services, but not through staff funds for local reasons which made it difficult. It had been suggested, therefore, that the remuneration could be either in the form of an agreed honorarium or through a staff fund.

After discussion on familiar lines, during which the phraseology of the resolution was modified to meet various objections, it was put and carried thus:—

Where the board of management of a voluntary hospital accepts contributions for patients from an approved society, insurance company, contributory scheme, employer of labour, and/or by massed or periodical payments by employees, the members of the visiting medical staff should receive recognition of their services either in the form of an agreed honorarium, or by means of a percentage of all such payments being passed into a fund. Such honorarium or fund can be allocated in any manner which the visiting medical staff may determine.

MONDAY, JULY 21ST.

Taxing of Individual Payments.

The principle of payment of hospital staff was carried a stage further by a resolution proposed on behalf of the Hospitals Committee by Mr. HARMAN:—

Where the board of a voluntary hospital accepts payments from individual patients [other than paying patients referred to in Sections IX. (*a*) and IX. (*b*)] the members of the visiting medical staff should receive recognition of their services either in the form of an agreed honorarium or by means of a percentage of all such payments being passed into a special fund. Such honorarium or fund can be allocated in any manner which the visiting medical staff may determine.

This resolution, said Mr. Harman, was the keystone of the arch of the Association's hospital policy. Unless that resolution were carried the whole fabric would gradually fall in. This policy would protect all and sundry from being tempted to do that which was not quite straight. Unless this resolution were on the books, requiring some form of assessment of payments by individual patients, inevitably it meant that all those patients sent by the State, all those sent by employers of labour or under contributory schemes of approved societies and insurance companies, would be required to make their own arrangements; they would be sent to the hospital and told to pay the charges of the institution, and when they returned to their homes the thing would be squared up as between the patient and the approved society or other body.

Mr. Harman believed that this resolution made for justice and equity as between different classes of the community. To-day a large proportion of the work of those consultants who were attached to hospitals was given without any remuneration whatever. It had been said by one consultant that three-fourths of his work was done free. That meant that the consultant was charging all the cost of that three-fourths of his work to the remaining quarter of his patients—"the Robin Hood method," Mr. Harman called it. But the manual worker in these days was not a helot; he had a good time, thanks to what the brain-worker had done for him. At the moment the boot was on the other foot; the brunt fell on the brain-worker, whose wages had not increased in proportion to those of the manual worker. By this method of making all the costs of the consultant fall on a quarter of his patients they were causing the brain-workers to pay for the hospital treatment of the manual worker. If this were put to the manual worker he would say at once that it was not fair and that he did not want it.

Payment not "Repugnant."

On an amendment by Bolton that such taxation of voluntary payments by individual patients was repugnant to the hospital staffs, Dr. J. C. MATTHEWS pointed out the possibility of a hospital charging its patients enough to carry on without the aid of voluntary contributions at all, and the absurdity then of an unpaid staff. Dr. P. MACDONALD created amusement by including himself among the number of those who had a subconscious vested interest in voluntaryism. He did a large part of his work at hospital, and made his living by charging those people who were unfortunate enough to have to consult him larger fees than they could afford. From the South it was pointed out that the staff fund suggestion was terribly disliked, and if pushed would lead to withdrawal from membership. The amendment was lost by a large majority.

"Not Recoverable from Third Parties."

An amendment was then proposed by Dr. E. R. FOTHERGILL (Brighton) to exclude from the scope of the resolution payments which could be recovered from third parties:—

Where the board of a voluntary hospital accepts payments from individual patients [other than paying patients referred to in Sections IX. (*a*) and IX. (*b*)] *not recoverable from third parties* which are insufficient to pay more than the total average cost to the hospital, such payments shall not be liable for assessment for visiting medical staff fund purposes; but some form of recognition should be made to the visiting medical staff from all other such payments by way of an agreed percentage in the case of a public authority, and by an honorarium or otherwise in all other instances.

Dr. Fothergill spoke of the differing conditions in North and South; in the North the taxing of individual contributions might be necessary to avoid exploitation, in the South it would be considered mercenary by many. In any case, it would be wiser to postpone decision since hospital benefit was likely to be brought by the Royal Commission within the National Insurance scheme. Mr. W. MCADAM ECCLES explained how the antagonism to medical staff funds was disappearing in London. One reason for this was that members of voluntary hospital staffs who had been receiving an honorarium in respect of their motor-car or telephone had had to concede that they were receiving that honorarium out of the ordinary funds of the hospital. Secondly, payment up to a "maintenance" limit was not necessarily "voluntary"; there were some hospitals which laid it down that payment "must" be made. And finally, there was another consideration which counted for much. The majority of patients did actually believe that the payments they made to the hospital, either voluntarily or on request, were made for two specific purposes—namely, partly for their maintenance in hospital and partly for the treatment they were receiving. Therefore they were right in asking for a proportion to be handed over to the medical staff fund. Mr. F. C. PYBUS (Newcastle) said that the hospitals in the North must safeguard themselves against mass contributors, and that owing to increasing decentralisation the surgeon would have to look more and more to the hospital for his livelihood. Dr. CHRISTINE MURRELL (London) called it almost unfair to the patient who paid a contribution to a hospital not to allow some portion of it to go to the doctor. She was sure the manual worker did not wish his treatment to be paid for by the brain-worker. Dr. T. W. LIPSCOMB (New South Wales) was afraid that if the resolution was carried it would be found to embarrass the profession overseas. Some of them who had had experience of Labour Governments felt that the best way to avert nationalisation of hospitals—which they did not want—was the retention of their status as honorary officials. He would

restrict admittance to the actual "sick poor"—those unable to obtain adequate attendance in their own homes, when the urgency would disappear. Dr. E. W. G. MASTERMAN remarked that in all Government institutions the term "maintenance" included the salaries of the medical staff. Dr. N. MACFADYEN (East Herts) said that if that resolution were carried it meant that in theory, at least, the voluntary system was dead, and they were no longer free agents. Theirs was essentially a charitable profession. A large element in the country could not pay a proper amount for treatment, and until that portion of the population was in a better position it should be assisted by the charity of the public and to some extent by the charity of the medical profession. Dr. J. D. COMRIE said that in Edinburgh also there had been a change of view on the part of the hospital medical staffs. In the ordinary hospitals they were no longer dealing with the "sick poor"—who were to be found in the Poor-law infirmaries—but with the well-to-do artisan class who were able, and often anxious, to contribute to the hospital. Dr. C. BUTTAR agreed with Australia; it was not good tactics to fight Labour control by taking Labour money. Mr. SOUTTAR thought the adoption of the resolution would render the whole hospital policy nugatory. It was almost impossible to ascertain whether the payments of patients were personal or not. It had been suggested that a way out of the difficulty would be to limit hospital admission to hospitals to the "sick poor," but they had no right to do that. How many nursing homes in the country were equipped with X ray apparatus? What right had they to exclude those who had put by a little money and who stood in need of treatment which could only be obtained at a hospital?

Dr. Brackenbury Sums Up.

We have reported at some length the discussion on Dr. Fothergill's amendment, for it was the final stage in what no doubt will come to be regarded as an historic decision, and all shades of opinion were well represented and clearly expressed. Before Mr. Harman replied for the Hospitals Committee, Dr. BRACKENBURY set out with admirable precision the essential elements of the situation. The point, he said, they had to decide was whether personal contributions from patients which did not reach the level of the cost of maintenance ought or ought not to be ear-marked for contributions to the State fund. He had previously spoken on the side of those who thought that such a contribution ought not to be so ear-marked. Like Sir Richard Luce, he had been converted. In the first place, the hospitals were in a better financial position than they were two years ago, and he did not think medical men would be so liable to be accused of putting into the pockets of the profession something which the hospitals desperately needed in order to enable them to carry on at all. Then the proposal now put forward was that there should be "an agreed honorarium," which was a very different thing from saying that 20 per cent. should be passed into the staff fund. That was one of the things which had enabled him to come round to its support. But he had also been impressed by the volume of evidence that had come to him, especially from the North of England, that there was a great deal of subterfuge actually going on in this matter. There were societies and employers and combinations of workpeople who were sending people into hospitals and saying: "We will let you pay the subscription to the hospital and we shall then be able to get off without paying this contribution to the staff." He therefore thought it dangerous to draw a line between massed contributions and individual contributions. Then there were many people who could contribute something above the cost of maintenance and did, in fact, contribute something below the cost of maintenance. He was convinced that the distinction between a personal contribution above the cost of maintenance and one not above the cost of maintenance was impracticable to obtain. He doubted if the motion in fact did what its proposer intended it to do. The motion read "not recoverable from third parties." He did not see how it could be discovered in individual cases all over the country whether a contribution given was or was not recoverable from, or provided by, somebody else. If that could not be discovered, then it was better to have the simple clear-cut policy—that all these contributions should be ear-marked in some way, and to some degree, as a recognition of the services of the hospital staff, even if in a particular hospital the staff desired only a nominal honorarium which they could give back to the hospital if they liked.

Mr. HARMAN said that the policy was not intended to apply to Australia, where there were four different classes of hospital—known as departmental, committee, intermediate, and private—which did not correspond in essential ways to conditions in Britain. The Brighton amendment having been put to the meeting and lost by a large majority, the resolution was carried by the necessary two-thirds majority and becomes the policy of the Association.

"Super-Contributory" Schemes.

Mr. HARMAN then suggested that in the event of proposals being made to establish contributory schemes to provide in-patient treatment for those referred to in the hospital policy of the Association as "private patients" and yet who are unable to pay individually at the time of illness for these benefits, such schemes shall provide as follows:—

(*a*) An income limit scale such as is approved by the majority of the medical profession resident and practising within the area of the scheme.

(*b*) The accommodation provided for in-patient treatment to be at recognised nursing homes, paying hospitals, or in accommodation of the nature of a nursing home in connexion with a voluntary hospital.

(*c*) Patients should be admitted to the benefits of the scheme only on the recommendation of a private practitioner, except in cases of emergency.

(*d*) Free choice of doctor (attendant and specialist) by the patient subject to the consent of the doctor to act.

(*e*) The scheme to be administered by a general committee representative of all the interests concerned—medical, hospital, and lay—and not by any voluntary hospital or other coöperating institution.

(*f*) The method of remuneration of medical specialists to be payment for work done on the terms customary for such patients in each area.

(*g*) Any provision made under such schemes for consultation and specialist's services apart from in-patient treatment shall be arranged for at the consulting rooms of the chosen consultant or at the home of the patient on terms customary for such patients in the area of the scheme, and not in any out-patient department of any institution.

This proposal was carried without further discussion.

Standards of Hospital Provision.

Mr. HARMAN then suggested that it would be well for the Association to lay down certain approved standards for hospitals in England and Wales, with 100 or more beds, on the basis of the information obtained by the Hospitals Committee. And with very little hesitation the following standards were accepted:—

(*a*) In every such hospital the visiting staff should be of recognised competency and should be proportionate to the number of beds in the hospital; a suitable ratio is about 1 to every 25 beds, or where out-patient departments exist the ratio of staff should be greater.

(*b*) In every such hospital recognised arrangements should exist for obtaining the services of registered practitioners experienced in (*a*) anæsthesia; (*b*) dental surgery; (*c*) dermatology; (*d*) diseases of the ear, nose, and throat; (*e*) electrology; (*f*) gynæcology; and (*g*) ophthalmology.

(*c*) In every such hospital there should be recognised departments for radiology, medical electricity, and massage.

(*d*) In every such hospital there should be provision, wherever useful and possible, for the services of clinical assistants.

(*e*) In every such hospital there should be at least one resident officer to every 50 beds.

(*f*) In every such hospital there should be staff meetings for discussion of clinical work at least once a month, and an analysis of the hospital work should be presented at each meeting.

(*g*) Every such hospital should have an efficient clinical laboratory with a recognised pathologist in charge.

(*h*) In every such hospital case records should be kept in respect of every patient, and these should be signed by the member of the staff responsible for the case; these records should be filed and indexed by a competent clerk; every effort should be made to obtain the subsequent medical history of each patient.

(*i*) There should be exchanges of information between the patient's medical attendant and the hospital medical staff.

Note.—To all letters issued by medical members of hospital staffs the following note should be appended: "The information contained in this letter is strictly private and confidential to the person to whom it is addressed, and must not be divulged without the consent of the writer."

(*j*) Every such hospital should employ a registered pharmacist.

(*k*) Every such hospital should be a recognised training school for nurses, and should have, or be associated with, a preliminary training school.

Formation of Local Hospital Committees.

The last act of the retiring chairman of the Hospitals Committee was to propose a scheme for the formation within the Association of local hospital committees for the purpose of organising local professional opinion as to hospital medical service. These committees, elected half by members of hospital staffs and half by the branch council, are to consider all arrangements made in connexion with local hospital conditions and all disputes arising in connexion therewith. The proposal was accepted without discussion, and Mr. Harman on leaving the platform received warm congratulation on the conclusion of his work.

TUESDAY, JULY 22ND.

AFFILIATION OF THE CANADIAN MEDICAL ASSOCIATION.

On behalf of himself and his co-delegate, Dr. Alfred COX, Sir T. JENNER VERRALL presented a report on their Canadian mission. In Canada the Association had never, for some reason or another, had the same hold on the profession that it had had in other parts of the Empire. Two successful annual meetings had been held, one at Montreal in 1897, the other at Toronto in 1906, but at the present time, out of a medical population of about 9000 in Canada, there were only 374 members of the British Medical Association, and the five branches existed only on paper. In these circumstances the suggestion of a possible affiliation led to a warm invitation from the Canadian Association to send delegates to discuss the question, accompanied by a pressing invitation to hold the annual meeting of the Association at Winnipeg in 1927. The mission found on the part of the Canadian medical profession an extreme readiness to accept a proposal for affiliation. Meetings were held at Quebec, Montreal, Toronto, and Ottawa, where the desire for closer union was explained and a scheme of affiliation formally adopted by the Canadian Association. Affiliation, he recognised, was in no sense an equivalent to membership in the British Association, but it gave an opportunity for coöperation, for reciprocal visits, and for tendering advice as medical policy developed in Canada.

Dr. COX spoke of their reception in Canada, where they were almost killed with kindness. The meeting endorsed the report, thanking the delegates for their services, and on the suggestion of the Chairman a message was sent by the meeting to the Canadian Medical Association expressing pleasure that the twenty-first meeting of the Representative Body should have been marked by the setting in motion of a scheme for closer relationship with their Canadian brethren.

INDIRECT ADVERTISING.

ON behalf of the Central Ethical Committee Dr. R. L. LANGDON-DOWN (South Middlesex), chairman of the Committee, moved the adoption of the very careful report on Indirect Methods of Advertising which we reproduce at length on page 246. Dr. Langdon-Down began by defining the two possible attitudes in regard to advertisement by medical men. Either complete freedom could be given or certain restrictions could be enforced by professional opinion or by professional law. He regarded the discountenancing of advertising methods as specially desirable on grounds of public interest. The basis of professional reputation should not be the self-praise of the individual, nor the appreciation of those who were poorly qualified to judge or who based their approval on unworthy or biassed grounds, nor should it depend on the frequency of the appearance of the practitioner's name in the public press, with or without photograph and appropriate headlines. Professional reputation should be soundly based on the esteem of colleagues and on solid, quiet work. Restrictions if made must of course be applied all round, and he went on to outline the relations of the Association with the General Medical Council and the more searching character of the Warning Notice issued as a result of their representations and Dr. Bolam's intervention in the Council. The policy of the Association was to treat the subject of advertising as a live part of professional law with no distinction between practitioner and consultant, and they had tried to harmonise the new law against indirect advertising with the exigencies of life and practice. The principle was easy, the application difficult; and he besought the meeting at all events to accept the general policy laid down in the report.

Dr. FOTHERGILL moved an amendment that, in view of no distinction being made in the report between intra- and extra-professional advertising, it should be referred back to the Committee for revision. They were all heartily in favour of something being done to stop the blatant kind of advertisement that was going on, and his own wish was to ask the press to coöperate. The reputable press did not want to advertise the inferior practitioner but it did sometimes desire to have adequate medical opinion on a matter of importance. If, he said, you allow a doctor to talk openly of birth control at a Church Congress, why not allow him an article over his own name in the public press? The public could see no distinction. The report suggested that a statement without signature would be of equal value. But was it? Certainly, readers would regard it as coming with more weight from Dr. So-and-So. The alternative would be for the Association itself to arrange for the issue of efficient statements on questions of moment, the information to be given in the name of the local division and not in the name of any individual. Should the ethical question then be raised, the Association would be in a position to say to the individual doctor: "Your opinion is not required: we have a scheme to inform the public adequately."

Dr. BRACKENBURY agreed that an anonymous letter did not in fact carry the authority of one that was signed. In this respect the report would have either too much effect or none at all. On important occasions they had agreed that certain doctors should write to the press. The iniquity consisted not in the name but in the address and photograph. Journalists were naturally apt to look at the matter not from the point of view of the medical profession but from their own, and they would put in your photograph ("or some one else's, with your name under it") without consulting the writer. "Some of us," he said, "suffer; but some of us do not mind. Personally, I suffer." He hoped that this part of the report would be referred back for consideration.

Dr. P. MACDONALD concurred, for he believed that on this point they would not carry the public with them.

Sir JENNER VERRALL regarded Dr. Fothergill's suggestion as impracticable. It was a question of speed. Answers would not be obtained in time from the division, and in the long run the public would remain unsatisfied. It was hardly correct to suggest that the medical man was tempted by the press; "what he does he does for his own advantage." The General Medical Council could not lay down any

strict letter of law, but it was equivalent to a jury of common-sense men who could decide in a particular case whether that was the kind of thing the medical man ought to have done. It should be possible to check erring brethren without depriving the public of legitimate information.

Dr. LANGDON-DOWN was glad that no serious attack was made on the principles enunciated; Dr. Fothergill was in fact wanting the same thing as the framers of the report. Advertisement consisted of two parts—the act and the motive; it had been their endeavour to direct motives and to leave the General Medical Council to deal with practice. Where information, he said, is a question of fact, it matters not who writes it; only as an opinion did the name matter. In examining books on semi-medical topics the Ethical Committee always required that neither address nor portrait should appear and discouraged the elaboration of appointments and titles. But he was quite willing to take the paragraph back for consideration,

Dr. BOLAM, as chairman of the B.M.A. Council, asked for endorsement or the reverse of the report as a whole. There was not merely passive resistance to encounter but actual defiance of what they thought was the proper professional ethic.

Mr. BISHOP HARMAN described the report as good in the main, but impracticable and wrong in one particular. Surely the weight of a communication was in proportion to the personality behind it. An anonymous letter might readily fail of its effect. He recalled the incident of a brilliant letter addressed to the *Times* over the signature "Veritas" which made scarcely a ripple on the surface. "I wrote a letter and signed it with my own name," he said, "and it went to Hongkong and back." "If I read in a paper 'on eminent medical authority,' I turn the page at once, and so does the intelligent part of the public." There was a celebrated saying that in a speech three things mattered: what is said; how it is said; and who says it—and the last was the only thing that really mattered. It was much the same with articles and interviews. What was the good of a love letter if it was not signed?

After a very full discussion the meeting expressed agreement with the report as a whole, referring back for further consideration the section relating to the discussion in the papers of matters of public interest by letter, article or interview.

Election of Eight Members of Council.

Eight members of the Council were elected by representatives on the principle of the single transferable vote, the names being Dr. H. G. Dain, Mr. W. McAdam Eccles, Dr. E. R. Fothergill, Dr. R. L. Langdon-Down, Dr. J. A. Macdonald, Dr. G. W. Miller, Dr. C. Sanders.

ANNUAL GENERAL MEETING.

TUESDAY, JULY 22ND.

The annual general meeting was held in the Technical College at 2 P.M., when the outgoing President, Mr. C. P. Childe, inducted Mr. J. Basil Hall into the presidential chair and invested him with the badge of office. After the statutory business the President reported that Dr. F. G. Thomson, consulting physician to the Royal Mineral Water Hospital, Bath, had been elected President of the Association for the year 1925-26, in place of the late Mr. Forbes Fraser. Dr. Bolam proposed a vote of thanks to the retiring President. Not often, he said, had the Association enjoyed a President who entered so keenly and in such detail into its work, or one who found time in a busy life for so much civic activity. Mr. Childe, in responding, remarked that his year of office had been of great educational value to him; it was a pity that all members could not become presidents. He reviewed his year of office with special mention of the large amount of voluntary work done by members of the Council. At the evening adjournment in the Regent Picture House, attended by members in academic and official dress, the President was accompanied on the platform by the Lord Mayor of Bradford, the Archdeacon of Bradford (Canon Stanton Jones), and other prominent citizens. He welcomed the delegates from Overseas, introduced to him by Dr. W. N. West Watson, local general secretary. Among these were:—

Major J. Morison, I.M.S. and Dr. R. Row (Bombay), Dr. A. N. Coomarasamy (Ceylon), Dr. O. Marriott (Hong-Kong), Dr. A. C. Lankester (Hyderabad), Dr. K. A. W. Procter (Kenya), Dr. A. L. Hoops and Sir Malcolm Watson (Malaya), Dr. Gordon W. Spencer (Mesopotamia), Dr. A. J. Spiller Brandon and Dr. Norman Dowling (N.S.W.), Dr. J. A. Doctor, Dr. A. W. Izard, Dr. W. B. Mercer, Dr. P. T. Putnam (N.Z.), Mr. P. N. Vellacott (Orange Free State), Dr. R. F. Matters (South Australia), Dr. J. B. Davey (Tanganyika), Dr. T. W. Sinclair (Victoria), Dr. J. J. Holland (Western Australia), Dr. L. G. Irvine, and Dr. J. H. Harvey Pirie (Witwatersrand).

Dr. Bolam then handed the *Stewart Prize* of the Association to Dr. Edward Mellanby, professor of pharmacology in the University of Sheffield, for important discoveries in the relation between rickets and dietetic deficiency. The President remarked on the appropriateness of the presentation in Bradford, which was the first city to set the feeding of school children on a municipal basis. The *Gold Medal* of the Association was then handed by the President to Dr. H. B. Brackenbury, chairman-elect of the Representative Body, for arduous and distinguished services to the Association and the medical profession. The testimonial was inscribed in an illuminated album. Mr. Hall spoke of Dr. Brackenbury's services to the medical profession in the controversy regarding panel practice, recalling the admiration expressed by the Government Advocate for the moderate and public-spirited manner in which Dr. Brackenbury conducted his case.

The President then delivered the address which appeared at the front of the last issue of THE LANCET, and, this done, the guests adjourned to a reception in the spacious rooms of the Cartwright Hall, where the forecourt was tastefully illuminated, and a very pleasant social evening was spent.

THE ANNUAL DINNER.

The annual dinner was held at the Midland Hotel on Thursday, July 24th, Mr. J. Basil Hall presiding. After the loyal toast had been honoured, the President handed to Dr. J. Henderson (Glasgow) the Ulster cup, and to Dr. J. J. Buchan, medical officer of health for Bradford, the Childe cup, both won on the Hawksworth Links. Dr. Brackenbury, in proposing "The City of Bradford," said that there was more in civic life than mere comforts. The health of a town depended to a large extent on the city fathers. And just as the medical profession should not go outside its professional sphere and interfere in activities not theirs, so it would be a lamentable thing for a big corporation to ride rough-shod over the beliefs and traditions of the practitioners in the town. Only by active and willing coöperation could the health of a city be effectually secured. Sir William Priestley, in replying, pictured the changes seen during the last 50 years in the conditions under which the people lived and worked in Bradford. Archdeacon Stanton Jones proposed "The British Medical Association," remarking that the physical and spiritual realms were drawing closer, and it was difficult to say where the work of one began and the other ended. He hoped the day would never come when the doctor became a State official, and he trusted the Association would put its strength on the side of the righteous forces of the nation. Dr. Bolam, in replying, said they were prepared to place their experience and knowledge at the service of any political party in office which took

what the medical profession conceived to be the right path. Dr. Wallace Henry proposed "The Guests," to which Prof. van den Bergh (Utrecht) responded. Mr. Hall, in conclusion, spoke with gratitude of the many groups whose help had contributed to the success of the gathering in Bradford.

THE PATHOLOGICAL MUSEUM.

A series of interesting exhibits were set out in the biological laboratory of the Technical College under the direction of a committee of which Dr. M. A. C. Bucknell was hon. secretary. Mr. Basil Hall showed specimens illustrating the surgery of the colon; Prof. F. W. Eurich a very complete exhibit illustrating anthrax and the work of the Government wool-disinfecting station at Liverpool under the charge of Mr. G. E. Duckering. Among the pathological specimens were the recent additions to the pathological museum at Leeds on which Prof. M. J. Stewart gave a demonstration.

THE EXHIBITION.

An exhibition of surgical instruments, appliances, drugs, food, &c., was held in the Windsor Halls from July 22nd to 25th. It was opened by Mr. Basil Hall in the presence of a large company, when he observed that he had opened many things in his time, some with corkscrews and some with other instruments, but he was for the first time opening an exhibition of that kind. He had no doubt of its great educational value in the suggestion of new ideas and in the inspiration of better technique. His remarks were endorsed by the Lord Mayor. A description of the exhibits will appear later.

EXCURSIONS AND SOCIAL AMENITIES.

During the stay of the Association in Bradford there were no fewer than 18 excursions, including a whole-day trip to the Lake District, the duties of transport officer being undertaken by Dr. Benjamin Wade, who secured the loan of 100 or more private cars. The staff work was so good that in no case was a party more than ten minutes late in starting. Visits were paid to Harrogate, York, and Scarborough, to the corporation water-works, and to many surrounding places of historic interest. An opportunity was afforded to those who wished it to see the various processes of local manufacture on a large scale. The official and private receptions were all largely attended. The Bradford Rotary Club gave a luncheon which led to useful interchange of opinion on some of the social problems of the moment.

At the official service at the Cathedral on Tuesday afternoon, July 22nd, the Archbishop of York spoke of the ministry of healing, and suggested that the time had come for full and impartial inquiry into the relation of body, mind, and spirit in the cure of disease. The B.M.A. Council, meeting the next day, decided that the difficulties with which this matter is at present surrounded would be likely to lead the investigation outside the sphere of the recognised activities of the Association, and after deliberation decided not to proceed with the reappointment of the committee on spiritual healing.

WELFARE OF THE BLIND.—A deputation from the National Union of the Professional and Industrial Blind was received by the Minister of Health on July 28th. The deputation, through Mr. Ben Purse, the general secretary, advanced reasons for objecting to the provisions contained in the Blind Persons Act Amending Bill now before Parliament. Mr. Purse pleaded for the further development of the present system of coöperation between the State, the local authorities, and the voluntary organisations. Mr. Wheatley was more particularly asked to take all possible steps for the prevention of blindness both in infancy and in adult life, and a number of administrative improvements were urged upon his attention. In reply, Mr. Wheatley said he was to see other deputations with regard to the blind in the course of the week, but he felt no difficulty in promising the most sympathetic consideration of all the points raised.

INDIRECT METHODS OF ADVERTISING.

REPORT OF CENTRAL ETHICAL COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

THE subject of "oblique advertising," discussed at the representative meeting of the British Medical Association on Tuesday, July 22nd, came up on a very carefully prepared report of the Central Ethical Committee. During the past few years there have been brought to the attention of this Committee certain journalistic developments which seem likely, if unchecked, seriously to undermine some of the most cherished traditions associated with medical practice in this country, and to lower the reputation of the profession among the more thoughtful sections of the community. In May, 1905, in consequence of representations made by the Association, the General Medical Council issued the following notice:—

The G.M.C. and Open Advertisements.

The practice of (*a*) advertising by a registered medical practitioner with a view to his own gain, particularly if depreciatory of other practitioners, or of sanctioning such advertising, of (*b*) employing or sanctioning the employment of agents or canvassers for the purpose of procuring patients, and of (*c*) associating with or accepting employment under any Association which practises canvassing or advertising for the purpose of procuring patients, are in the opinion of the Council contrary to the public interest and discreditable to the profession of medicine, and any registered medical practitioner resorting to any of such practices renders himself liable on proof of the facts to have his name erased from the Medical Register.

The result has undoubtedly been a great decrease in the cruder and more open forms of advertisement. The issue of handbills announcing the qualifications of medical practitioners and the door-to-door canvass for members of medical clubs are now only occasional occurrences. Of recent years, however, a subtle and indirect method of giving publicity to certain medical practitioners has obtained currency in the text and illustrations of the lay press, sometimes without and sometimes apparently with the active concurrence of those referred to. This publicity, by reason of the form that it takes and the medium that it adopts, results in a very effective advertisement for the person concerned. Such means of personal advancement may be considered legitimate in other walks of life but have in the past been shunned as undignified by the medical profession.

Scope of Warning Extended.

In February, 1922, the Association again addressed a communication to the G.M.C. asking if the time had not arrived when some authoritative pronouncement on the subject should be made. The G.M.C. replied (i.) that if a new offence not within the present Warning Notices was becoming prevalent, a flagrant case might be selected to be brought before the Council which would give it careful attention; and (ii.) that it was not the custom of the Council to issue a Warning Notice until the hearing of a case had established the need for it. At the December, 1922, Session of the G.M.C., however, one of the direct representatives of the profession on the General Medical Council raised the question afresh. As a result, it was remitted to the Executive Committee of the Council in consultation with the legal advisers, to consider and report upon the expediency of amending the Council's Warning Notice with respect to canvassing and advertising so as to make its scope more clear and comprehensive. At the June, 1923, Session of the G.M.C., the following new paragraph 6 of the Warning Notice was adopted:

Advertising and Canvassing.

The practices by a registered medical practitioner:—

(*a*) Of advertising, whether directly or indirectly, for the purpose of obtaining patients or promoting his own professional advantage; or, for any such purpose, or procuring or sanctioning or acquiescing in the publication of notices

commending or directing attention to the practitioner's professional skill, knowledge, services, or qualifications, or depreciating those of others; or of being associated with or employed by those who procure or sanction such advertising or publication, and

(*b*) Of canvassing or employing any agent or canvasser for the purpose of obtaining patients; or of sanctioning or of being associated with or employed by those who sanction, such employment;

are in the opinion of the Council contrary to the public interest and discreditable to the profession of medicine, and any registered medical practitioner who resorts to any such practice renders himself liable on proof of the facts to have his name erased from the Medical Register.

The Newer Methods of Advertising.

Examples of the newer methods are to be found in interviews granted to newspaper representatives, and in signed letters or articles sent to newspapers. In many of these, members of the profession, either by the direct assertion of the journalists concerned, or by more indirect methods, are referred to as possessing, or allow it to be inferred from their own words that they possess, methods of treatment superior to those practised by others. In the opinion of the Committee the word "advertising" in connexion with the medical profession must be taken in its broadest sense, to include all those ways by which a person is made publicly known, either by himself, or by others without his objection, in a manner which can fairly be regarded as "for the purpose of obtaining patients or promoting his own professional advantage."

Accepted Customs.

It is generally accepted by the profession that certain customs are so universally practised that it cannot be said that they are for the person's own advantage, as, for instance, a door-plate with the simple announcement of the doctor's name and profession. Even this, however, may be abused by undue particularity or elaboration.

Intra-Professional Channels.—It is commonly agreed that channels must be open for discussion between members of the profession for recording the results of research and clinical experience and for bringing to the notice of other members books published and facilities for treatment offered. The recognised channels are medical societies, medical periodicals, and works primarily intended for the medical profession. The information so given is intended for the convenience and advantage of the profession, which will be in a position to judge of the value of the information and of the manner in which it is conveyed. Even this legitimate kind of advertisement is capable of abuse.

The Medical Man as Citizen.—It is the recognised duty and right of a medical man to take his share as a citizen in public life, but there is no reason why this should involve any advertisement of himself as a doctor, and, with due care, improper advertisement can be avoided.

Publicity as an Official Duty.—Publicity is rightly allowed to medical men not in actual practice of their profession since they cannot be regarded as using this publicity for the purpose of promoting their own professional advantage, and in view of the official position of medical officers of health and other medical men who hold posts in either the public health or other public service, publicity is sometimes not only permissible but necessary for the fulfilment of their official duty. The presumption in all these cases is that publicity is not sought for the individual's own gain though it is possible that the practice might be abused and the presumption therefore fail.

Books and Lectures.—The publication of books and the delivery of lectures on semi-medical topics which are of general public interest and require medical knowledge for their proper presentation have been recognised as legitimate, subject to the avoidance of methods which tend to the personal professional advantage of their authors. There are many things innocent in themselves which may, by the manner and frequency of their doing, gravely contravene the principle that medical practitioners should not advertise.

Letters to the Press: Signed or Unsigned.

From time to time there are discussed in the papers matters of great public interest or importance regarding which it is to the advantage of the public that the medical considerations involved should be stated either by letter, article, or interview. If the only object in view is the proper instruction of the public, it is not necessary that the names of the medical writers or informants should be given. The newspapers can give the necessary assurance to their readers as to the professional standing of the authority quoted without mentioning names. If the journal were dissatisfied with this course it would probably be due to a desire to satisfy the curiosity of his readers about personalities rather than to a desire to instruct them on important matters. But even from the journalist's point of view adherence to the practice suggested would give him better results, since it would place at his disposal the opinions of men of greater standing and experience than are available now when names are allowed to be bandied about in public. There may be rare exceptions to this rule of anonymity as when a doctor is himself a principal actor in the circumstances under review. His intervention may be necessary, and would be meaningless if anonymous. In this case the publicity given has already been necessary on public grounds.

Speaking generally, it may be said that the medical men most often quoted in the press are not those whose opinions carry most weight with the medical profession or with the educated public. It is natural that those whom the press representatives most eagerly seek to draw into their service and utilise for their own advantage are those who have some recognised position or well-sounding address or title. It is, therefore, especially important that a stand should be made by such practitioners, who perhaps do not realise that the example set by them may well be pleaded in justification by those in a less prominent position.

Attitude of the Association.

After making all allowances for all those modes of publicity for which there may be some justification, there remain many instances which can only be regarded as gravely and unnecessarily contravening the spirit of the notice of the G.M.C. The Association is convinced that in taking up an attitude of determined opposition to these undesirable journalistic methods the Association is acting in the best interests of the public as well as of the medical profession. The extension of the system can only lead to a competition for public notice in which the abler and more scrupulous men would be left behind by those who professionally are greatly inferior, to the detriment of the public, who are ill-qualified to judge of the true worth of scientific opinions. The extension of the advertising habit among the profession in general would certainly destroy those traditions of dignity and self-respect which have helped to give the British medical profession its present high status, and would gravely undermine the amenities and harmonious working of medical practice.

The Honour of the Profession.

The Association, therefore, draws the attention of the profession to the danger of these objectionable methods, and insists upon the urgent need that every member of the profession who values its honour should offer a firm resistance to these insidious developments. If only those whose reputation is mainly derived from the newspapers allow their names and opinions to be quoted or to appear as those of "the eminent" physician, surgeon, or specialist, the practice will die a natural death.

Correspondence.

"Audi alteram partem."

ANTHELMINTICS AND THEIR NOMENCLATURE.

To the Editor of THE LANCET.

SIR,—In connexion with the leading article on anthelmintics in your issue of July 19th, I should like to point out that current nomenclature is in certain respects misleading and likely to cause confusion between santonin and chenopodium. Santonin is derived from santonica, the dried flower-heads of the composite *Artemisia maritima var. stachmanniana*. Artemisia assumes a great diversity of forms which were the object of attentive study on the part of the Russian botanist, Besser, in 1834–35, and his researches have resulted in the union of many supposed species under the name *Artemisia maritima*. A specimen of the plant labelled in his handwriting, with a memorandum that it was collected for medicinal use, is in the herbarium at Kew. It completely agrees with the Russian wormseed or *Flores cinæ* of commerce, cinæ being the name given to wormseed in homœopathic literature. It was first given by Wilkomm in 1872, when he described as mother plant of wormseed the Artemisia which he found in Turkestan. This Russian santonica is often known as Levant wormseed or merely as wormseed (Wurmsamen in the German Pharmacopœia), although it is not strictly a seed at all. For therapeutic use the pure definite chemical compound, santonin, is preferable to "wormseed" or santonica, as samples of wormseed are often met with which contain practically no santonin at all. Indeed, it is generally only the plant grown in Russian Turkestan which contains satisfactory amounts of santonin; attempts to grow a santonin-yielding plant in other localities have so far been unsuccessful. In veterinary practice wormseed is often preferred, and in that case care should be taken that only a genuine Russian wormseed of good quality is used.

The so-called American wormseed from which oil of chenopodium is derived is obtained from a totally different plant, belonging to a different family—namely, *Chenopodium ambrosioides anthelminticum*, and has thus nothing in common with the santonin-yielding "wormseed." The oil derived from the fruit of this plant owes its anthelmintic properties, as stated in your article, to entirely different substances from santonin, "ascaridole" being the chief. The synonym "wormseed oil" sometimes used for it is therefore unfortunate, and it should always be referred to as chenopodium oil. This confusion is particularly noticeable in German publications. In a recent paper in the *Deutsche Medizinische Wochenschrift*, describing five cases of poisoning from the oil (four of them fatal), it is indiscriminately referred to as Wurmsamenöl and Ol. Chenopodii.

I am, Sir, yours faithfully,

PERCY MAY, D.Sc. Lond., F.I.C.

The Laboratory, Staple Inn Buildings, Holborn, W.C., July 25th, 1924.

THE FACULTY OF MEDICINE IN THE UNIVERSITY OF LONDON.

To the Editor of THE LANCET.

SIR,—The letter in your issue of July 19th, signed by Profs. Parsons, Frazer, and Barclay-Smith, is a valuable and much needed protest against decisions on important medical questions being taken by the Senate of the University of London, without consultation of the Boards of Studies in Medicine or of the Faculty itself. The signatories to the letter prefer (I think rightly) that the whole Faculty should be consulted in such cases.

A curiously pertinent instance of a tendency to ignore the existence of the Faculty occurred at the last meeting of the Senate (on July 23rd). In my capacity as chairman of the Council for External Students I brought forward a resolution, passed unanimously by my Council, recommending that a proposition to institute a new degree in the Faculty of Medicine should be referred to that Faculty before the Senate in fact instituted the new degree. This resolution was opposed at the Senate by the Dean of the Faculty of Medicine, who enunciated the astonishing doctrine that it was useless to consult that Faculty because its membership was too large. Disfranchisement seems an odd reward for vigorous expansion! Chiefly as a result of this unexpected opposition by the titular head of the Faculty my motion was defeated, and a new degree, Bachelor of Pharmacy, in the Faculty of Medicine will accordingly be established without the wishes of the Faculty or any of its Boards of Studies being ascertained. I think it behoves the Faculty to assert its rights and to insist upon its views being heard in matters of grave medical importance, notwithstanding the strange reluctance of its Dean to consult the body to which he owes his seat upon the Senate.

I am, Sir, yours faithfully,

E. GRAHAM LITTLE,
Representative on the Senate of the Medical and Surgical Graduates of Convocation.

July 26th, 1924.

THE USE OF CEREALS IN PRESERVATION OF THE TEETH.

To the Editor of THE LANCET.

SIR,—In your issue of July 19th you draw attention in an editorial article to certain experiments on the cereal feeding of dogs: similar experiments are recorded in the second edition of the Report on the Present State of Knowledge of Accessory Food Factors (Vitamins) published by the Medical Research Council (Special Report Series, No. 38, revised).

The Bread and Food Reform League has for many years directed attention to the value of whole cereals as a means of securing good teeth, and is therefore concerned lest any misinterpretation of the results of these experiments should bring this valuable prophylactic into disrepute. In the report quoted above it is stated (p. 96) that it was found by E. Mellanby, while investigating the experimental production of rickets in puppies, "that of the cereals examined, oatmeal, as bought in the shops, was the most potently rickets-producing, and that the disease developed much more seriously and rapidly on oatmeal than on whole wheaten meal, white wheaten flour, or rice. The difference between the action of wholemeal and white flour and rice was not so great, but wholemeal flour was slightly worse than white flour and rice." Again (p. 150): "Cereals differed in their detrimental action on teeth-formation—oatmeal was the worst of those examined; white flour and rice the best." It is further stated (p. 96) that "The explanation of these unexpected results obtained with different cereals has not yet been suggested."

Now the following facts about whole cereals, to which the Bread and Food Reform League has for many years directed attention, may help to solve this problem. It is agreed that, in order to form good bones and teeth, it is necessary not only that food should contain phosphorus, lime, and the growth-promoting and antirachitic vitamins, but also that the adequacy of calcification is influenced by the amount and *balance* of these substances in the diet. As far back as 1880 it was recognised that whole cereals contained a large proportion of phosphorus and a limited amount of lime. Therefore, as the late Sir Arthur Church, F.R.S., stated, wholemeal bread should be supplemented as a diet by a plentiful supply of green vegetables. The amount of calcium in 5 per cent. of whole-milk does not, according to McCollum, furnish enough calcium to balance diets consisting of cereals, legume seeds, tubers, fleshy roots, and meat (Johns Hopkins Hospital Bulletin, 1922).

I suggest, therefore, that puppies fed on oatmeal and milk did not obtain sufficient calcium to balance the large amount of phosphorus found in oats, and that it is for this reason that they had defective teeth. Mellanby's experiments showed that the addition of cod-liver oil to the diet of these puppies "completely transformed the structure of the teeth." However, the wide variations in metabolism as evidenced by the difference in susceptibility of different animals to the diseases produced by diet, "suggest caution in applying results indiscriminately from one animal to another" (report quoted above, p. 84). In guinea-pigs, for example, deficiency of the *antiscorbutic* vitamin resulted in defective teeth (Zilva and Wells), while McCollum and his co-workers (1922) incriminated the absence of this vitamin as a factor in producing oral disease.

It is not contended by anyone that wholemeal bread taken alone forms perfectly balanced food, but that in conjunction with green vegetables and fats containing vitamins C and A it forms a better balanced dietary than does white bread. It would be most unfortunate if, as the result of a few experiments on puppies, the impression should be spread that cereals have a detrimental effect on tooth and bone formation, especially since whole nations, for example, the inhabitants of the Northern Provinces of India, who live principally on wheatmeal, are known to have excellent teeth.

I am, Sir, yours faithfully,

MAY YATES,
Hon. Sec. Bread and Food Reform League.

37, Essex-street, London, W.C. 2.

THE MEDICAL DIRECTORY.

To the Editor of THE LANCET.

SIR,—The annual circular has been posted to each member of the medical profession. If the form has not been received, a duplicate will be sent on request. We shall be grateful for the return of the forms by an early post.

We are, Sir, yours faithfully,

J. & A. CHURCHILL.

7, Great Marlborough-street, London, W.1.
July 29th, 1924.

TRAINING OF NURSES.

To the Editor of THE LANCET.

SIR,—It will be remembered that at the recent British Hospitals Association meetings in London I raised the question as to the regulations of the General Nursing Council with regard to the recognition of smaller hospitals in the training of nurses. Since then I have been in correspondence with Sir Wilmot Herringham and the General Nursing Council, and to-day I have received a letter of which a copy is appended.

The General Nursing Council,
12, York Gate, Regent's Park,
London, N.W. 1.
28th July, 1924.

DEAR SIR,—The Council on July 25th resolved that the following be added to the scheme for the training of nurses who will be admitted to the Register after the training and examination rules come into operation:—

"I. (3) There are other hospitals which are sufficiently large, but from deficiency of clinical material in some branch cannot be approved as complete training schools. Such hospitals will be required to associate themselves with another hospital or hospitals in order to supply for their nurses that part of the training in which they are deficient. The Council is prepared to consider any scheme for carrying out such an arrangement, but the period of training must extend over three years and six months and it will be for the hospitals who propose to associate themselves to satisfy the Council that the arrangements will be adequate to afford a complete training. Such hospitals will be entitled 'Associated Hospitals.'"

Your hospital will fall under this rule. We have no reason to anticipate that the Minister of Health will disapprove the rule.

Yours faithfully,

MARIAN C. RUNDLE,
Registrar.

As this question is of immediate and the utmost importance to the smaller hospitals of our country, I shall be glad if you will insert this letter in your next issue. I also desire to take this opportunity personally to thank the representatives of nearly 30 hospitals who were good enough to express their kind appreciation of my efforts.

I am, Sir, yours faithfully,

Grimsby, July 29th, 1924. JOHN BARKER.

SQUINT, LEFT-HANDEDNESS AND STAMMER.

To the Editor of THE LANCET.

SIR,—My son, when about 5 years old, showed himself left-handed at games, and as this peculiarity has been a difficulty of mine, I determined to save him in his turn from the defect. With this in view I spent some hours bowling to him on the condition that he should use his bat right-handed. I was successful, he was cured of the habit. A few years after this he developed a marked hesitation of speech, and I have been informed that this affection is a not infrequent result of the correction of a left-handed habit. For want of a term I coined one. I had produced "inverted cerebration." The college authorities of a large school here advised me to put him under Mr. Schnelle, of Bedford Mansions, and I am grateful to him for the result. The boy is almost entirely cured. Mr. Schnelle in answer to my questions says he has known similar cases. What I should like to ask in your columns is this: What is the position as regards other functions? Does the "inverted cerebration" confine its pernicious effects to the speech centre? I should be grateful for any help on the point.

I am, Sir, yours faithfully,

July 28th, 1924. F.R.C.S. Irel.

*** Dr. W. S. Inman sends us this week an interesting article in which this subject is dealt with.—ED. L.

Parliamentary Intelligence.

HOUSE OF LORDS.

Workmen's Compensation (Silicosis) Bill.

ON Thursday, July 24th, the Workmen's Compensation (Silicosis) Bill was read a second time. On Tuesday, July 29th, the Bill was read a third time and passed.

HOUSE OF COMMONS.

TUESDAY, JULY 22ND.

Educational Health Services.

The House went into Committee of Supply on a vote of £25,900,000 for the salaries and expenses of the Board of Education, Mr. ROBERT YOUNG, Chairman of Committees, in the chair.

Mr. TREVELYAN (President of the Board of Education) said many schools which were in process of condemnation before the war were still in existence and had remained untouched and unimproved. Many of those schools were ill-lighted, overcrowded, and even insanitary, and many of them had barely any playground and some none at all. He was at this moment having a complete survey made by his inspectors, and in the course of the autumn he would make clear what school buildings could be allowed only a limited period for their continued existence. Some of them would have to be condemned outright and the reconstruction of others would be required. He did not intend to set up too high a standard for the poor sorts of school, for if he wanted satisfactory school buildings everywhere he would have to condemn schools in droves in every county. What he was going to do was to get rid of the worst schools.

Replying to subsequent discussion, Mr. MORGAN JONES (Parliamentry Secretary of the Board of Education) said no reasonable proposal for the erection of new school clinics or for the extension of the buildings where treatment was provided had been rejected by the Board. The number of new special schools certified since April 1st, 1923, was 13, and since Jan. 1st four of these 13 had been approved.

The vote was agreed to.

Public Health (Scotland) Amendment Bill.

On the motion for the third reading of the Public Health (Scotland) Amendment Bill,

Mr. BUCHANAN said he regretted that the Bill had been amended in Committee and that the Secretary for Scotland was going to be prevented in the future if science found some new method of dealing with disease from being able to carry that remedy to the poor people at the earliest possible moment. If the question of expense was going to be raised at all it should not be raised on a Bill of this sort. While accepting this Bill he expressed the hope that the Secretary for Scotland would in a short time go into the whole question of coördinating the health services and would help the local authorities in more generous fashion.

Sir J. GILMOUR said it was only right that Parliament should know of any fresh departure which was made in these grave medical matters and that they should also know through the Minister concerned why orders were proposed. Parliament should know to what the local authorities were being committed. If any fresh discovery was made in regard to the cure of such a fell disease as cancer the House of Commons, however it might be composed, would give its consent to any measure provided that it was satisfied that it was a correct one and was approved by the medical profession.

The Bill was read a third time.

WEDNESDAY, JULY 23RD.

Deaths in Urban and Rural Areas.

Mr. BLACK asked the Minister of Health whether he could account for the large variations given in the figures supplied by him on July 1st in the deaths in urban areas—viz., fluctuations from 7·2 to 16·5 per 1000, and in rural areas fluctuations from 7·0 to 19·7 per 1000; whether the higher rates applied to areas where sanitary conditions were the worst and the public medical and maternity services were least efficient; and whether he proposed any measures to bring down the high incidence of mortality in certain areas to that of the lower.—Mr. WHEATLEY replied: I am advised that the considerable variations in the death-rate for 1923 as between area and area cannot be assigned to specific causes, and, moreover, that it is hazardous to attempt to draw inferences from the mortality-rates for a single year. It is, however, the fact that, in the case of both the urban and the rural area with the highest rates for 1923, the sanitary conditions are not satisfactory, and my department is giving attention to these conditions.

Lymph used at Hendon Institute.

Mr. BLACK asked the Minister of Health whether he would investigate the records which have been kept showing the pedigree of the lymph used at the Hendon institute; what was the nature and origin of the strains of lymph now in circulation by the Government; and whether he could supply a chart showing the pedigree of a single strain of lymph now in use.—Mr. WHEATLEY replied: The records show that the lymph now used at the Government Lymph Establishment is derived from calf lymph originally obtained from Cologne and the strain has since been carried on, as the hon. Member was informed on April 2nd last, by repeated transference from animal to animal. I fear it is impracticable to chart the pedigree as suggested in a form which would be readily understood.

National Health Insurance.

Mr. WILLIAM M. ADAMSON asked the Minister of Health if the National Health Insurance (Prolongation of Insurance) Act would be renewed for 1925.—Mr. WHEATLEY replied: Provision has been included in the expiring Laws Continuance Bill now before Parliament for the extension until Dec. 31st, 1925, of the operation of the National Health Insurance (Prolongation of Insurance) Act.

Maternal Mortality in Kensington.

Mr. JAMES GARDNER asked the Minister of Health whether he was aware that the rate per annum of maternal mortality per 1000 births was for 1919–21, Kensington 4·31, Poplar 2·90, and West Ham 2·03, and Kensington, in 1921, 3·9, in 1922, 5·0, and in 1923, 5·8; whether he was aware that this high maternal mortality in Kensington almost wholly occurred among the poorer classes; whether he would give the figures of maternal mortality in Poplar and West Ham for 1923; and whether his medical staff would investigate and inquire whether necessitous mothers and expectant mothers in Kensington received sufficient assistance in midwifery and suitable food either from the guardians or the borough council.—Mr. WHEATLEY replied: The rates given in the first part of the question are the maternal mortality-rates for the period 1919–22, not 1919–21. For Kensington, the rate was 4·10 in 1921, 4·76 in 1922, and 4·81 in 1923; for Poplar and West Ham, the rates in 1923 were 3·29 and 3·08 respectively. I am well aware of the high maternal mortality in Kensington, which no doubt occurs mainly among the poorer classes, and the borough council have recently taken steps to improve and extend the midwifery facilities in the borough. The council have, for some time past, made arrangements for the supply of meals and milk to expectant and nursing mothers in necessitous cases.

Geneva Committee on Anthrax.

Mr. SOMERVILLE HASTINGS asked the Minister of Health what conclusion had been reached by the Committee on Anthrax at the recent International Labour Conference at Geneva, in view of the substantial number of cases of anthrax which continued to occur and the admitted fact that the work of the disinfecting station at Liverpool could not be wholly efficient until supplemented by international action.—Mr. DAVIES (Under-Secretary to the Home Office) replied: I am not quite sure that I understand my hon. friend's meaning. The recent international conference rejected the proposal of the British Government that the question of an international convention in regard to the disinfection of infected varieties of wool should be placed on the agenda of next year's conference, notwithstanding that the proposal was based on the report of the International Anthrax Committee which recommended such disinfection. The policy of the British Government is not, however, dependent on the conclusion of an international convention on the subject. Parliament has already by the Anthrax Prevention Act, 1919, authorised the necessary measures for securing such disinfection in the case of infected material imported into this country, and it is the intention of the Government to proceed with the measures that were initiated by their predecessors for this purpose.

Houses Built under the Addison Scheme.

Mr. MARDY JONES asked the Minister of Health what was the total number of dwelling-houses built under the Addison scheme during each year from 1919 to 1923, inclusive.—Mr. WHEATLEY replied: The numbers of houses completed in each year from 1919 to 1923 under schemes authorised by the Housing Acts of 1919 were as follows:—

Year.	Local authorities' and public utility societies' schemes.	Private builders' subsidy schemes.	Total.
1919	100	—	100
1920	9,171	6,540	15,711
1921	68,255	18,414	86,660
1922	74,769	14,232	89,001
1923	15,679	—	15,679
Total ..	167,974	39,186	207,160

Out-relief in England.

Mr. GRAHAM WHITE asked the Minister of Health the number of persons in receipt of out-relief in England as on Jan. 1st and July 1st, 1924.—Mr. WHEATLEY replied: On the nearest dates to those named for which figures are available the numbers were 961,297 and 846,458.

THURSDAY, JULY 24TH.

Ministry of Pensions Hospitals.

Mr. DARBISHARE asked the Minister of Pensions the number of hospitals now under the administration of the Ministry; the number of beds occupied and vacant; and the total annual expenditure incurred in maintaining these hospitals, including medical staff, &c.—Mr. F. O. ROBERTS replied: The present number of military hospitals is 33, the number of occupied beds 6249, and of vacant beds 1188. This latter figure is temporarily in excess of the normal number of vacant beds which must be kept for the change of patients. This is due to the fact that certain hospitals, no longer required, are being vacated but are still partially occupied pending evacuation. The expenditure by the Ministry in maintaining these hospitals is estimated at £755,000 for the present financial year.

Tuberculosis in the Scottish Highlands.

Mr. MACKENZIE LIVINGSTONE asked the Secretary for Scotland in view of the present high death-rate from tuberculosis due to the deplorable housing conditions in various crofting areas in the Highlands of Scotland, when he proposed to take steps to improve the housing conditions in the Highlands.—Mr. ADAMSON replied: I am aware that the death-rate from tuberculosis in various crofting areas is high, though I cannot admit that bad housing is the sole contributory cause. Considerable improvements have recently taken place in the housing conditions in many districts of the Highlands and Islands. Facilities for improving the housing conditions in the Highlands and Islands are already available under the existing law and will be extended to some extent under the provisions of the Housing Bill. Under that Bill the whole area within the Highlands and Islands (exclusive of burghs) will be a rural area within

which the higher rate of subsidy will be payable in cases to which it is applicable. Under existing arrangements crofters are entitled to assistance on special terms from the Board of Agriculture for the improvement and provision of houses and in addition they may obtain a subsidy from the local authority in terms of Section 2 of the Housing Act of 1923. Under Clause 7 of the present Bill if a local authority fails to take steps to make the subsidy under the Act of 1923 available to crofters the Board may pay it direct. So far as the second part of the question is concerned every step which it is possible for me to take to accelerate improvement in the housing conditions will be taken.

Single Room Tenements in England and Wales.

Mr. ALDEN asked the Minister of Health what were the last available figures as to the number of single-room tenements in England and Wales.—Mr. GREENWOOD replied: According to the 1921 census, which furnishes the most recent figures available on the subject, there were 317,417 private families in England and Wales occupying one room or less apiece, the aggregate number of rooms occupied by them being 317,260.

New Child Welfare Centres.

Mr. ALDEN asked the Minister of Health the number of new child welfare centres at December, 1923, and at the present time.—Mr. GREENWOOD replied: According to the information in the possession of my department the number of maternity and child welfare centres in England and Wales was 2201 on Dec. 1st, 1923, and 2,272 on July 1st, 1924.

MONDAY, JULY 28TH.

Composition of Patent Medicines.

Sir KINGSLEY WOOD asked the Minister of Health whether his attention had been called to the dangers arising from the unrestricted sales of certain patent medicines; that their manufacturers were not compelled to disclose the composition of the product bearing their labels or prevented from advertising it as a cure for a particular ailment; and whether he proposed to take any action in the matter to further protect the public.—Mr. GREENWOOD replied: My right hon. friend's attention has been called to this matter, but he fears that in the present state of business the Government cannot undertake to introduce legislation on this subject during the present session.

Maternity Benefits in India.

Mr. SCURR asked the Under Secretary of State for India whether it was the intention of the Government of India to ratify the proposals of the International Labour Convention of Washington concerning maternity benefits.—Mr. RICHARDS replied: The answer is in the negative. The Washington Conference of 1919 resolved that the Indian Government should be requested to make a study of the question of the employment of women before and after confinement, and of maternity benefits, and to report on these matters.

Child Mortality in Bombay.

Mr. SCURR asked the Under Secretary of State for India the mortality-rate for children under one year and under five years for each of the years 1919, 1920, 1921, 1922, and 1923 in Bombay.—Mr. RICHARDS replied: The following are the figures for 1919 and 1920:—

Ratio of Deaths per 1000 of Population in Bombay Presidency According to Age.

Year.	Under 1 year.		1 year and under 5 years.	
	Males.	Females.	Males.	Females.
1919	206·70	196·73	56·48	55·32
1920	191·42	174·26	45·60	43·20

The figures for 1921, 1922, and 1923 are not yet available.

TUESDAY, JULY 29TH.

Assaults on Young Girls.

Sir THOMAS BRAMSDON asked the Home Secretary if he was now in a position to give the names of the members of the departmental committee who will inquire into the subject of assault on young girls, the terms of reference, and any other information relating to the matter.—Mr. DAVIES (Under Secretary to the Home Office) replied: My right hon. friend has now appointed a committee under the chairmanship of Sir Ryland Adkins, K.C., with the following terms of reference: "To collect information and to take evidence as to the prevalence of sexual offences against young persons, and to report upon the subject, indicating any direction in which, in their opinion, the law or its administration might be improved." The other members are Mr. H. W. Disney, Miss E. H. Kelly, J.P., Miss Clara Martineau, J.P., Dr. A. H. Norris, Mr. R. J. Parr, Mrs. Rackham, J.P., and Sir Guy Stephenson. The secretary is Miss J. I. Wall, of the Home Office.

Medical News.

UNIVERSITY OF OXFORD.—The following degrees in medicine have been conferred at recent Congregations:—

D.M.—N. F. Smith, Balliol; H. H. Sanguinetti, Wadham; J. F. Venables, Magdalen; and G. K. Stone, Trinity.

B.M.—R. E. D. Cargill, Christ Church; W. J. E. Lupton, New; K. J. Franklin, Oriel; G. R. P. Aldred-Brown, Keble; H. W. Pearson, Brasenose; C. J. Fuller, Queen's; A. A. F. Peel, University; G. P. Wright, Exeter; C. W. Carter, and G. I. Wilson, Queen's; W. H. Bradley, Christ Church; D. R. Gawler, University; C. A. H. Green, Trinity; A. D. Dyson, Corpus Christi; and E. H. Koerner, Magdalen.

UNIVERSITY OF LONDON.—Dr. A. W. M. Ellis, who has been appointed as from Oct. 1st, 1924, to the University chair of medicine tenable at the London Hospital Medical College, was educated at Upper Canada College and at the University of Toronto. In 1908–09 he served as house physician and house surgeon in the Hospital for Sick Children, Toronto, and during 1909–10 he was resident pathologist at the Lakeside Hospital, Cleveland, Ohio, and demonstrator in pathology in the Western Reserve University Medical School. In 1910–11 he assisted in the teaching of pathological chemistry at the University of Toronto. From 1911 to 1914 he was assistant physician to the hospital of the Rockefeller Institute. During the war he was in charge of the Cerebro-spinal Fever Hospital at Bulford (1914–15), from where he proceeded to France with the 1st Canadian Division, becoming officer commanding the Canadian Mobile Laboratory in 1916. In 1918 he was appointed adviser in pathology to the Fourth Army. In 1919 he received a grant from the Medical Research Council and since 1920 he has been assistant director of the medical unit at the London Hospital.

At a recent meeting of the Senate, the Vice-Chancellor (Prof. E. A. Gardner) being in the chair, the Bethlem Royal Hospital was admitted as a school of the University in the Faculty of Medicine for the purpose of research in psychological medicine. The resignation by Prof. H. R. Kenwood, of the Chadwick Chair of Hygiene at University College, as from December next, was accepted with regret, and with an expression of appreciation of his long and valued services to the College and to the University. Sir Wilmot P. Herringham has been elected chairman of the committee of the medical members of the Senate for 1924–25.

At examinations held recently the following candidates were successful:—

M.D. EXAMINATION.

Branch I., Medicine.—John A. Birrell, Univ. Coll Cardiff and St. George's Hosp.; Florence R. Dingley, Univ. Coll. Hosp.; Arthur H. Douthwaite, Guy's Hosp.; John N. Kerr, (University Medal), St. Bart.'s Hosp.; Reginald C. Lightwood, King's Coll. Hosp.; and Gladys M. Wauchope, St. Andrews University and London Hosp.

Branch IV., Midwifery and Diseases of Women.—Janet K. Aitken and Edith K. Budden, London Sch. of Med. for Women; Calvert M. Gwillim, St. Bart.'s Hosp.; Dorothy McNair, London Sch. of Med. for Women; and Kathleen H. Matthews, London Sch. of Med. for Women and St. Mary's Hosp.

Branch V., State Medicine.—Harry Shannon, St. Bart.'s Hosp. and Univ. Coll.

M.S. EXAMINATION.

Branch I., Surgery.—Grant Massie, Guy's Hosp.; and Arthur D. Wright, St. Mary's Hosp.

Branch IV., Laryngology, Otology, and Rhinology.—Victor E. Negus (University Medal), King's Coll. Hosp.

UNIVERSITY OF WALES.—At a recent congregation held at University College of North Wales, Bangor, the following degrees were conferred:—

M.B., B.Ch.—David I. Bowen, Daniel T. Davies, Edith M. Davies, Leslie C. Edwards, Martha Griffith, Emrys D. Owen, and Constance Walters.

M.Sc. (hon. causa).—Dr. Harry Drinkwater.

LL.D. (hon. causa).—Sir Donald MacAlister.

UNIVERSITY OF EDINBURGH.—At the graduation ceremonial on July 25th the following degrees were conferred:—

DOCTOR OF MEDICINE.

Alexander G. Biggam, Arnold Davies, *George D. Fairley, *Thomas Ferguson, ‡Shankar W. Hardikar, †John F. C. Haslam, †Thomas D. Inch, †John Jeffrey, *Frans Krone, *Abdurrahman Khan Lauddie (in absentia), ‡Robert C. Low, *Harry S. Lucraft, Douglas I. O. Macaulay, Edward S. Massiah (in absentia), Charles I. Milne, Janet M. Murray, John O. Murray, Owen T. Owen, *Graham C. Ramsay (in absentia), James W. G. H. Riddel, Stephen Rowland, Arnold H. Shennan, *Basil H. H. Spence, *Adam White, †Stephen H. Wilkinson, ‡George S. Williamson, and Edward A. Wilson.

* Commended for thesis. † Highly commended for thesis. ‡ Awarded gold medal for thesis.

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

*Alexander M. Affleck, James A. Aitchison, James Aitken, Agnes M. Allan, Arthur J. W. Allen, Arthur A. Allison, *James M. Alston, James M. Anderson, Rupert G. Anderson, William L. Anderson, Frank R. Ashton, Douglas Bell, Richard Bell, Roland A. Bennett, William D. Bertram, Charles M. Bethune, William J. Bethune, Wilhelmus H. Biccard, Charles A. Bingham, Robert A. F. Blair, *Thomson Bonar, Marion Bow, Tom R. Bowden, Eric P. Boyle, Cuthbert A. Bozman, Abraham Brodie, Marjorie I. Brotherston, Kenneth R. Brown, Margaret C. Bruce, Joyce L. Bunting, Cyril P. Burges, Margaret C. Burnett, White, Robertha Burt, Rennie C. Burton, Fernie L. Buttar, Bertha M. Butters, Donald Cameron, Ian M'D. Cameron, Angus F. Campbell, George M. Campbell, Robert J. W. Charlton, William N. Chisholm, Elizabeth K. Clark, Margaret R. Clark, John Cottrell, William D. Couper, James Crawford, Elsie V. Crowe, Donald A. Cunningham, Frank Danks, William R. Davies, Cyril Davies-Jones, Leslie J. Davis, Edgar Dockray, Mary K. D. Douglas, John E. Dovey, Anne Duguid, Ian Duguid, *John Durran, Richard O. Eaton, Daniel M. Edington, Reginald A. Edmondson, Archibald . Fairbairn, Alan A. Fothergill, Arnold Foxcroft, Abel J. Gans, Cecil E. G. Gill, Keith H. Gillison, Edward J .G. Glass, Isaac Goldberg, George R. Gomez, Ernest W. Goodwin, Edmund G. R. Grant, James L. Harley, Jacob W. Harris, Thomas B. Harvey, Donald J. D. Henderson, Percy S. Henderson, Dorothy P. Herdman, Richard Hermon, John Heron, Charles E. V. Horne, John L. Horne, Thomas Howden, Elenora J. Howie, John W. Hunter, Norman M. Hunter, Charles Hurwitz, Lewis I. Johnston, Jeannie Kean, Thomas P. Keating, Winifred K. N. Kemp, George R. Kennedy, Paul A. H. King, David Laing, Ferdinand W. Lang, John H. D. Lawrie, William J. Liddle, Jacob S. Liptz, Phyllis E. List, Ralph Lodge, Elizabeth B. Lorne, Kathleen B. Lorraine, Gwyneth D. Love, John Lowe, Ian E. M'Cracken, Andrew S. M'Culloch, Mellis MacCulloch, Alan A. S. M'Donald, Donald R. Macdonald, Ian J. Macdonald, James F. M'Donald, Ronald A. Macdonald, Henry M. MacGill, *Isabel M. MacGillivray, Donald M'Gregor, Ian G. MacGregor, William Mackay, Helen W. MacKenzie, Henry W. D. Mackenzie, William J. Mackintosh, Angus E. W. M'Lachlan, † Donald G. S. M'Lachlan, Helen S. M'Laren, Donald Macleod, John Macleod, *John T. M'Ouat, Shena Macvicar, William R. Main, Margaret F. B. Marshall, Alexander N. Melvin, Andrew I. Messer, †Ruth E. Millar, William G. Millar, Robert D. Miller, Kathleen G. Milner, †Grace E. Monro, John G. B. F. Morris, James R. Murdoch, Charles A. Murray, George B. Murray, Henry A. Murray, Bernard Myer, Harry Myers, Izak Z. G. Nel, Barbara K. Nicholson, George S. Nicoll, Sam Noll, John G. Oliver, Winifred Ormerod, John R. Paterson, Harry Patrick, †William G. Patterson, John H. Penman, Thomas V. R. Philip, Herbert B. Porteous, Annie Rabinowitz, Frances A. Redhead, Herbert R. M. Richards, James A. Richardson, Archibald H. D. O. Richmond, Robert G. Riddell, George Robb, Rhoda B. V. Robb, Arwyn Roberts, Lewis G. Rosa, Fraser M. Rose, Andrew M'K. Ross, Anita H. M. Ross, William M. Ross, Cecil F. Rostant, Charles M. Russell, Iain Sanderson, Robert C. Scott, Max Segal, Archibald J. Shedden, Thomas D. Shiels, Herbert Shirlaw, Mark F. de Silva, Agnes M. C. Simpson, *Winifred M. Small, Ernest Smalley, Cecil H. Snowdowne, John R. Somerville, John W. Starkey, John P. Steel, Noel M. Stephen, Robert S. Stewart, Stephen S. L. Steyn, Robert I. Stirling, Arthur J. Stout, Donald N. Stuart, Haydn R. Stubbins, Annie Sutherland, Jessie C. B. Sym, Jack Symon, John M. R. Thomas, Thomas H. Thomson, Albert T. Till, †Margaret C. Tod, Agnes F. Turner, *James F. G. Turner, William S. Urquhart, Jessy W. Ward, John Williamson, William C. Wilson, Walter Wyatt, Frederick E. Wynne, Helen M. A. Young, John A. B. Young, and Roberta M'G. Young.

* Second-class honours. † First-class honours.

The following diplomas were awarded :—

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.

Reginald J. Matthews (in absentia).

DIPLOMA IN PUBLIC HEALTH.

Elizabeth A. Baxendine (in absentia), Elizabeth S. Blair, Jane P. S. Bow, William Boyd, Harry H. Condie, Mary I. S. Cuthbert (in absentia), Edward C. Ellis (in absentia), Jean F. Farquhar, Edith N. Hartley (in absentia), Doris M. Hopps, Janet M. Morton, Agnes M. Ogilvie, Leopold T. Poole, Robert J. Reid, William A. Simpson, Archibald G. H. Smart, Dorothy F. Smith, Vera Thompson, Edgar P. Waters, John H. H. Williams, and Charles R. Wilson.

The Cameron Prize in Practical Therapeutics was awarded to Dr. Harvey Cushing, Moseley Professor of Surgery, Harvard University, and Surgeon-in-Chief, Peter Bent Brigham Hospital, Boston, Mass., for important contributions to the Surgery of the Brain.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on July 25th Sir Harold J. Stiles, President, in the chair, the 22 successful candidates out of 57 entered, who passed the requisite examinations between March 31st and April 7th were admitted Fellows :—

Robert G. G. Croly, Ronald Cuttle, Hugh Donovan, Samuel E. Duff, Arthur A. Gommell, Peter F. Gow, Pooran C. Kacker, Hilda M. Lazarus, Laura M. Ligertwood, John D. McLaggan, Ebenezer R. Maduram, Sukumar Nag, Ellen L. A. Pateman, Richard H. C. Pryn, Cecil A. Rae, Zelman Schwartz, Louis Sive, Rufus C. Thomas, Allan P. Walden, Hugh A. B. Whitelocke, William R. Williams, and Thomas G. Wynne.

The following candidates have passed the Final Dental Professional Examination and have been granted the diploma of L.D.S. R.C.S. Edin. :—

William J. Irvine, Schalk W. van der Merwe, Andrew M. Rable, Annan B. Ness, Hector H. Tomlinson, Alexander R. Gibb, James Baird, Frederick H. Boltman, Clarence G. Morgans, William G. S. Inglis, Susan S. Grandison, Daniel Bell, James Lumsden, William D. McKenzie, George P. Main, and Francis W. Kynoch.

EAST SUFFOLK AND IPSWICH HOSPITAL.—On July 28th the war memorial wing of the hospital at Ipswich was opened by the Duke of Connaught. The new building has been erected at a cost of £67,000, and has increased the permanent accommodation of the hospital from 113 to 270 patients.

UNIVERSITY OF MANCHESTER.—The Court of the University, on the unanimous recommendation of the Council and Senate, has invited Prof. S. J. Hickson, F.R.S., to continue his tenure of the Beyer Chair of Zoology for a further period of two years from September next. Miss Hilda Linford, M.B., Ch.B. Manch., has been appointed demonstrator in human physiology, and Mr. E. Nevill Willmer, B.A., demonstrator in experimental physiology. The Platt Physiological Scholarship has been awarded to Mr. G. L. Brown.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—In October will be celebrated the jubilee of this school. The festivities already planned include a public dinner at the Guildhall on Oct. 24th and a festival service at St. Paul's Cathedral on Oct. 25th. It is hoped to raise the sum of £50,000 to endow three chairs of pathology, physiology, and anatomy respectively, to be named after the three pioneer women in medicine, Dr. Elizabeth Blackwell, Dr. Elizabeth Garrett Anderson, and Miss Sophia Jex-Blake. The Queen has headed the list of donations for this purpose with £50, and already eight gifts of £1000 each have been received—four of them from women doctors, and other sums amounting to £1387 have been promised. Donations to the endowment fund should be made payable to the hon. treasurer, Sir Alan G. Anderson, and addressed to the organising secretary, Mrs. K. Balfour Duffus, at 8, Hunter-street, London, W.C. 1.

BRITISH PHARMACEUTICAL CONFERENCE.—At the sixty-first conference, which was held recently at Bath, under the chairmanship of Mr. Edmund White, the question of whether legislation should be introduced to control the manufacture and sale of patent medicines formed the principal subject of discussion. Mr. Philip F. Rowsell, of Exeter, vice-president of the Pharmaceutical Society of Great Britain, said that it was a matter of urgent public necessity to remedy the more flagrant evils and abuses existing in the sale of patent medicines, for except in so far as patent medicines came within the scope of the Poisons and Pharmacy Act, the trade was subject to no important restrictions at all. And the trade was increasing: in 1914 the receipts from the medicine stamp duty were £360,000, while in 1923 they were nearly £1,250,000. Two possible means of control were suggested: (1) that the manufacturers state the composition of the product on the label, or (2) that there should be some machinery for the control of advertising. One delegate said that professionally the control of the trade would be an advantage, although from the business point of view it would inevitably be detrimental to the pharmacist. Sir William Glyn-Jones, secretary of the Pharmaceutical Society, said that it was the duty of the Pharmaceutical Society to assist the authorities in suppressing abuses of the trade. He added that many more or less patent drugs sold ought to be on the poison schedule. Mr. Sheppard, a delegate from Exeter, urged that the declaration of alcoholic content should be compulsory. The sale of pseudo-medicated wines, he declared, led to a great deal of secret drinking. Finally the subject was referred to the Council of the Pharmaceutical Society for the formation of a scheme and its submission to the branches.

DONATIONS AND BEQUESTS.—The late Mr. Bernard Frederick Laporte, of Harpenden, Herts, left by will £250 to Treloar's Cripples' Home; £250 to the Bute Hospital, Luton; and £150 to the Children's Sick and Convalescent Home, London-road, Luton.—Under the will of the late Miss Elizabeth Catherine Theresa Hickes, of Brook-street, Bath, the testatrix left £500 to the Royal Mineral Water Hospital, Bath, and £300 to the Royal United Hospital, Bath; £50 to the Eastern Dispensary, Bath; £50 to the Western Dispensary, Bath; £100 to the Bath District Nursing Institution; £100 to the Convalescent Home at Combe Down; £100 to the Home for Cripples, Prospect-place, Bath; £100 to the Medical Mission Fund of the Society for the Propagation of the Gospel.—By will the late Mrs. Janet Grace Heritage, of Elsworthy-road, Hampstead, N.W.,

and Leamington, left among other bequests £5000 to St. Columba's Hospital, Avenue-road, N.W.; £5000 to the Hospital for Consumption and Diseases of the Chest, Fulham-road, S.W.; £500 to the London Hospital; £300 to the Faversham Cottage Hospital; and £300 to the Royal Victoria and West Hants Hospital at Boscombe and Bournemouth.—The late Mr. J. C. White, formerly Lord Mayor of Belfast, bequeathed the sum of £100,000, to be devoted to charitable purpose at the discretion of his executors, Messrs. Skinner, McMillan, and Wheeler. The above sum has now been allocated. The Royal Victoria Hospital receives £6000, the Bangor Hospital £5000, and various Belfast Hospitals £1000 each. Several Dublin hospitals and county infirmaries in Northern Ireland also receive the sum of £1000.—The sum of £500 has been presented to the King Edward's Hospital Fund by H.I.H. Tafari Makonnen of Abyssinia.—The British Empire Cancer Campaign has received a further sum of £600 as a result of the special collections organised by the Northamptonshire branch of the British Red Cross Society. The Birmingham branch has remitted an additional £162 from the collections in that city.

BERMONDSEY MUNICIPAL CONVALESCENT HOME.—The Minister of Health, Mr. Wheatley, formally opened this home for mothers and babies at Fawkham, Kent, on July 26th. The house—Fairley Grange—has nearly 20 acres of grounds and is the gift of Dr. A. Salter, formerly M.P. for Bermondsey.

THE LATE DR. W. J. KERR.—William James Kerr, M.D. Manch., J.P., died at his residence in Rochdale on July 24th at the age of 58. Dr. Kerr received his early education at the Manchester Grammar School and his medical training at Owens College, the Manchester University, and the Royal Infirmary of Manchester, graduating as M.B. and Ch.B. in Victoria University in 1890. He became M.R.C.S. and L.R.C.P. Lond. in the same year. In 1895 he took the degree of M.D. in his University with high commendation. Dr. Kerr began practice in Rochdale in 1896 and speedily built up a large practice, from which he retired a few years ago. Appointed in 1896 an honorary surgeon of the Royal Infirmary, he took an active part in its medical and administrative work, and was president of the medical board during 1911 and 1912, and later a consulting surgeon. He was for 16 years surgeon to the police force of Rochdale. During the war he placed his services at the disposal of the Parliamentary Recruiting Committee, acted as an examiner of recruits, and undertook the duties of factory inspector for Rochdale. His chief interests apart from matters political—for he was an ardent politician—were in public health and sanitary matters, and besides holding medical offices, Dr. Kerr was a member of the town council for ten years, a magistrate, and a J.P. of the borough.

DEATH OF DR. EDMUND M. SMITH.—The death of Dr. Edmund Smith occurred on July 23rd, following soon upon his retirement as health officer for the city of York, when occasion was taken to chronicle his work in the public service (THE LANCET, June 14th). Edmund Moody Smith was a native of Leeds, received his medical education at Edinburgh University where he graduated M.B., C.M. in 1888 and M.D. in 1894, being awarded the Milner-Fothergill medal. He was a successful general practitioner in York until he became deputy medical officer of health in 1898 and whole-time officer two years later. His appointment as school medical officer followed in 1908, and the special (open-air) schools for mentally defective and physically defective children at Fulford Field remain as monuments of his interest in this direction. Dr. Smith was an active member of the York Musical Society and of the Yorkshire Philosophical Society. He was just 60 years of age and leaves a widow.

THE LANCET: SUBSCRIPTION RATES.

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INDEX TO "THE LANCET," VOL. I., 1924.

THE Index and Title-page to Vol. I., 1924, which was completed with the issue of June 28th, will shortly be published. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers wishing to receive the Indexes regularly as published should indicate this desire.

Appointments.

COHEN, HENRY, M.D. Liverp., has been appointed Assistant Honorary Physician at the Royal Infirmary, Liverpool.

COSENS, W. B., M.R.C.S., L.R.C.P. Lond., an Hon. Consulting Surgeon to the Dorset Mental Hospital.

JENKINS, WINIFRED M., M.B., B.S. Lond., Medical Missionary to the Holy Cross Hospital, Kaffraria, S. Africa, by the S.P.G.

KETTLE, EDGAR HARTLEY, M.D., B.S., of St. Mary's Hospital, Professor of Pathology and Bacteriology in the Welsh National School of Medicine.

Vacancies.

For further information refer to the advertisement columns.

Belfast Joint Nursing and Midwives Council for Northern Ireland.—Examiners.

Birkenhead Education Committee.—Asst. M.O. £600.

Birmingham, Woodlands Open Air Hospital.—H.S. £250.

Cambridge, Addenbrooke's Hospital.—H.S. £130.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. £125. Also Radiologist.

Durham, Holywood Hall Sanatorium, Wolsingham.—Locum Asst. Res. M.O. £40 per month.

Freemasons Hospital and Nursing Home.—Res. M.O. £250.

Gloucestershire Royal Infirmary and Eye Institution, Gloucester.—H.S. £175.

Jersey General Hospital and Poor-law Infirmary.—Res. M.O. £200.

Leeds Public Dispensary.—Sen. Res. M.O. £200.

Melbourne University, Victoria, Australia.—Chair of Pathology. £1200.

Norwich City.—Temp. Asst. School M.O. £11 11*s.* weekly.

Pontypridd Union, Llwynypia Hospital.—Supt. M.O. £700.

Samaritan Free Hospital for Women, Marylebone-road, N.W.—H.S. £100.

Sherwood Forest, Notts, Ransom Sanatorium.—Asst. R.M.O. £375.

Southampton, Royal South Hants and Southampton Hospital.—Jun. H.S. £150.

Staffordshire Education Committee.—Asst. Sch. Med. Insp. £600.

West Ham County Borough.—M.O.H. and Chief Sch. M.O. £1500.

THE Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointment: Worksop (Nottingham).

Births, Marriages, and Deaths.

BIRTHS.

HARVEY.—On July 21st, at Lane End, Bournville, Birmingham, the wife of W. F. Harvey, M.A., M.B., of a daughter.

MARTIN.—On July 25th, the wife of James Purdon Martin, M.D., Hunter House, Hunter-street, W.C., of a son.

PATERSON.—On July 28th, at 17, Manchester-street, to Dorothy, wife of Dr. Donald Paterson, of 13, Upper Wimpole-street—a son.

MARRIAGES.

CROCKFORD—BROOKES-SMITH.—On July 21st, at St. John's Church, Holmwood, Allen Lepard Crockford, M.C., M.B., B.Ch., to Doris Ellen Brookes-Smith, younger daughter of Mr. J. H. Brookes-Smith and Mrs. Brookes-Smith, of Brook Meadow, The Holmwood, near Dorking.

ORMSBY—DUGGAN.—On July 25th, at the Chapel Royal, London, after civil ceremony, William Ormsby, late Captain, R.A.M.C., of Rathmoy, Ballina, Co. Mayo, South Ireland, to Mary A. Duggan (*née* Brunt), of Long Sutton, Lincs., near Wisbech.

DEATHS.

BENTHALL.—On July 25th, at Priory-road, N.W., suddenly, Albert Benthall, F.R.C.P.E., aged 74.

ENGELBACH.—On June 24th, at Cape Town, Harold Augustus Engelbach, M.B., B.Ch.T.C.D., Medical Officer of S.A. Police and District Surgeon of Cape Town, aged 52 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

POSTURE IN THE TREATMENT OF DISEASE.

BY R. H. ANGLIN WHITELOCKE, M.D. EDIN., F.R.C.S. ENG.,
SURGEON TO THE RADCLIFFE INFIRMARY, OXFORD.

I PROPOSE to consider the subject of posture more especially as it may concern our dealings with sick children and their management. I shall begin by referring to the practical relationships of posture to ætiology and diagnosis, and later to treatment in various forms of disability in the adult as well as the child.

Posture in Relation to Ætiology and Diagnosis.

It not uncommonly happens that the individual, be he child or adult, assumes instinctively a posture by which his condition may be immediately recognised or which gives important indications as to his future management. The clinician also from time to time is wont to make systematic use of posture to assist him in diagnosis and to aid him in treatment. Posture as a cause of disease is chiefly important in connexion with occupation; thus whilst many persons suffer, and in various ways, from long-continued standing, there are others who are placed equally at a disadvantage from following sedentary occupations. Some who, like colliers and miners, have to work in constrained and unnatural positions are also liable to suffer in consequence. Posture is also of importance as predisposing to certain affections under peculiar and unusual circumstances and in modifying these effects. The recumbent position in low febrile states may lead to hypostatic congestion with its consequences, or to an accumulation of morbid products in the bronchi and lungs which may seriously endanger life. Positions adopted spontaneously by patients often give useful information in diagnosis. In cardiac and pulmonary diseases the individual may be quite unable to lie down owing to the interference with the respiratory functions; he is perforce compelled to sit up, lean forward, or be propped up in bed. In one-sided lung affections he may be only able to lie on one or other side, whilst in heart disease he may be quite unable even to lie on his left. The position generally assumed by the subjects of acute generalised peritonitis is so familiar to us all, and so characteristic, that it needs only to be mentioned to supply us with a very striking example of the value of morbid decubitus as a diagnostic asset. In the various spasmodic attacks of pain frequently associated with this part of the body and known as colic, it is very common to see the patient bending forwards in a doubled-up position and pressing upon the abdomen. In nervous affections also posture aids diagnosis.

It may reveal paralysis in various parts. In cerebral meningitis the subject lies usually in a state of complete flexion with the limbs and body curled forwards and brought together closely, and in cataleptic states any position assumed is usually retained for some considerable though variable time. The posture voluntarily assumed by a limb may give useful information as to local diseases likely to influence it, such as those of the joints, or draw attention to some injury.

Posture as a Therapeutic Measure.

Some of the facts already enumerated demonstrate to us clearly the value of posture also as a therapeutic measure. It will at once be evident that if a wrong posture is the cause of any disability or morbid condition, the first principle in treatment should be to set it right. It is often of great service to allow or even encourage a patient to adopt the position which makes him most comfortable at the particular time. Whenever general prostration and exhaustion are present the recumbent or semi-recumbent posture is clearly indicated as being the most restful, seeing that it involves a minimum of effort. In acute febrile conditions the first essential of treatment is to keep the subject recumbent in bed; and this is also desirable and advisable when excessive fatigue has been endured. In respiratory affections attention to posture is often of much service for symptoms associated with the breathing apparatus, such as pain, cough, and dyspnœa are in many cases peculiarly influenced by change of position. Coughing is often arrested and expectoration made easier by the assumption of a sitting or erect position, whilst the semi-prone or bending-forward position may help much in relieving any pressure upon the tubes.

All cardiac affections are more or less influenced by posture. The horizontal is invaluable in syncopal states since the head at a lower level than the body allows the blood to reach the brain more readily. Whenever the heart is acting feebly from any cause, the act of suddenly raising the patient even into the sitting posture is injudicious and may even cause death. On the other hand, there are conditions of the heart, as when it is dilated, when the individual is quite unable to lie down with any comfort. In such a case it may be quite necessary to have him propped up constantly; the beneficial result being sometimes almost miraculous. The influence of gravitation may be recognised in certain conditions such as dropsical accumulations and generalised anasarca. Even hæmorrhage may be rapidly diminished or even partially arrested on occasions by elevation of the bleeding limb or injured part.

In the treatment of such affections as sea-sickness, giddiness, neuralgia, headache, affections of the head and spine, change of position often brings relief. The varied positions into which the limbs are placed involuntarily to relieve muscular spasm, tension, or pain as the result of disease or injury, must not be lost sight of. In the feeble, and those who have been long confined to bed, it is essential that their positions should be changed periodically to diminish the risks of hypostatic congestion of the lungs and the development of bed-sores. The subjects of chronic cerebral and spinal diseases are also peculiarly liable to these postural disabilities.

Posture in Connexion with Surgical Operations.

Posture is an important factor in post-operative care and treatment. It is certainly one of the most powerful means available both of avoiding complications and hastening recovery. Many and varied are the positions used nowadays, and adapted for preventive and active treatment: (1) the Trendelenburg, or position of raised extremities; (2) the Sims, semi-prone or abdominal; (3) the Fowler, sitting or semi-erect. These may be used separately or in combination.

The Trendelenburg position has been extensively used by surgeons in the United States of America, mainly as a prophylactic agent in assisting to maintain the return of venous blood when for any reason it is hampered, either from a local or general cause. The Sims and Fowler positions are chiefly concerned in establishing and maintaining the drainage of morbid secretions and effusions from wounds or from the cavities and spaces within the body.

Venous thrombosis and its consequences have for many years past supplied a serious cause of anxiety and discomfiture to surgeons. Why the slight anatomical difference between the iliac veins should cause the left vein to be affected in this way at least 20 times more frequently than its fellow, and why the complication should occur usually in the second week after the operation and not before, and in post-operative cases rather than in those without operation, is difficult to understand, and is still to-day without satisfactory explanation. W. Meyer, who 23 years ago published a very interesting paper[1] concerning this serious complication, wrote again recently[2] that in his opinion "treatment by posture will prevent venous thrombosis to a certainty" if carried out regularly and systematically as a post-operative method in the Trendelenburg position. It would be gratifying to feel that so serious a complication might be overcome by such simple means as raising the lower end of the bed upon blocks so that the pelvis of the patient is higher than his thorax. Elevation of the thrombosed limb alone is not recommended. The whole true pelvis must be raised higher than the thorax and the posture adopted soon after the operation and maintained until all risks of thrombosis have passed—that is, for at least ten days. During this time breathing exercises are encouraged as part of the treatment.

The typical Sims's posture, with both arms of the patient pointing forwards while he rests principally on his *right* shoulder, is to my mind the most useful, efficient, and comfortable. If we put the subject of a perforated appendix in Sims's position immediately he is removed from the operating table to his bed, it will be seen that the true pelvis is now the highest point of the drainage system and not the lowest. Blood serum, wound secretions, bile, or any other intra-abdominal extravasated material will in this position run downwards by the shortest possible route, and find ready exit providing an adequate drainage-tube is used. The continuance of this position for the first 18 or 24 hours should be insisted upon—after this, a slight turning to the left is permitted. The usual dorsal decubitus is assumed on the third day, as by that time the discharge will have ceased or become greatly diminished. The foot of the bed should not be raised for the first two or three days, lest perchance any toxic material should flow towards the subphrenic spaces where absorption is known to be most active.

[1] Rare Complications after Operations for Appendicitis, Annals of Surgery, May, 1901.
[2] Surg. Clinics of North America, 1921, i., 305.

Disadvantages of Fowler's Position.

Fowler's position, at one time so much extolled and almost universally used, is not now so much in favour. Instituted for the main purpose of establishing drainage and the removal of all toxic fluids towards the pelvis from the upper abdominal peritoneum by means of gravitation, it has been found in practice to present the following disability, which is not present in Sims's or the modified Sims's position. The Fowler position is often very uncomfortable; the patient keeps sliding downwards into the bed and requires to be raised periodically, a manœuvre not without danger. Children will seldom remain in this position for any length of time, and I claim that it is by no means an established fact that it is essential to successful drainage.

I consider that the gravitation theory is quite untenable, and for the following reasons: (1) Drainage of the pouch of Douglas can be quite successfully established through a midline anterior abdominal incision with the drainage-tube placed vertically and the flow against gravity. (2) The thorough drainage of abscesses and other morbid effusions that have escaped into any part of the peritoneal cavity, be it pelvic, appendicular, hepatic, gastric or intestinal, can be effected with the patient lying on his back even continuously, providing certain precautions are taken as to the nature and size of the tube. (3) Children seldom remain in the semi-erect Fowler posture for any length of time, yet who will say that the mortality of appendicitis is any higher in children? (4) Some surgeons who have never allowed the Fowler position at any time in their practice have yet obtained excellent results. That gravitation plays a very important part in abdominal, thoracic, or intracranial drainage is doubtful. The drainage of morbid substances from the body cavities outwards or from one part to another is mainly a vital process. The to-and-fro respiratory movements of the diaphragm and chest wall are undoubtedly the main agents; and drainage is effected by muscular movements rather than gravitation. The peritoneal cavity is normally a closed space with all the contained viscera in close apposition. Every movement of the diaphragm and abdominal muscles in the respiratory efforts presses the viscera, which are elastic and largely compressible, closely together in a to-and-fro rhythmic way. Any fluid or semi-fluid material that is present in, or has found its way into, either the abdominal or thoracic cavities is also similarly compressed. It now only needs a suitable opening, prevented from closing by the insertion of a proper drainage-tube, for automatic drainage to be established. In a similar manner, in the case of joints, the encouragement of movements materially assists drainage. In my opinion, the noticeable reduction in the mortality of appendicitis cases following the introduction of the Fowler and Murphy positions was probably not due to this postural form of treatment so much as to the contemporaneous use of saline injections.

Conclusion.

I wish to emphasise that in the nursing of children posture is especially important, and much, I think, may be gained for them in the future if the nursing profession is taught as a routine the methods of its application. The child instinctively and naturally assumes that position in which he is most comfortable, yet how often is he roused and put into some set position regardless of his protestations, only to lapse again as soon as possible into his old place.

PUBLIC HEALTH IN THE PUNJAB.*

THE population of the Punjab, according to the census of 1921, was 20,517,606, excluding dwellers in military cantonments. Calculated on this basis the birth-rate was 39·3, and the mortality-rate 22·1 per 1000. The health of the province was exceptionally good. Lieut.-Colonel W. H. C. Forster, I.M.S., Director of Public Health, who presents the report for 1922, states that the total death-rate was lower than it had been since 1878. He considers, however, that "if any improvement in the vital statistics is to be obtained, the preventive organisation will have to be expanded, such expansion of necessity connoting a corresponding curtailment of expenditure on the curative organisation." As to this there may be a difference of opinion, but the solution is, of course, that the better the preventive organisation, the less will be the sickness from preventable causes, and therefore the less will be the expenditure needed for treatment.

The *birth-rate* for the province was 39·3 per 1000, as compared with 41·5 in 1921 and 40·0 in the preceding quinquennium. The ratios varied from 21·0 in Simla district, 28·4 in Attock, and 28·8 in Muzaffargarh, to 46·6 in Gurgaon, 46·9 in Amritsar, and 49·1 in Lyallpur. All the districts in Lahore division, and all but one in Multan, showed an increase on the quinquennial average; while all in Rawal Pindi, and all but one in Jullundur, showed a decrease. The ratio for the province, as in the year preceding, was higher than in any other province in India, Central Provinces coming next (35·80); in Bengal the ratio was 27·4.

The *general death-rate* was 22·1 per 1000, a considerable improvement on the ratios for the preceding year (30·1), and for the quinquennium (39·2). The ratio is also lower than that for any other province, except the N.W. frontier (21·68) and Madras (21·0). In the various districts the mortality ranged from 15·2 in Montgomery and 15·4 in Sheikhupura, to 27·0 in Gurgaon and 30·8 in Karnal. The *infantile mortality* (under 1 year) showed a great improvement, 161·35 per 1000 births, as compared with 195·78 in 1921 and 211·23 for the previous five years. Among Mohammedans the ratios were 165·33 and 147·28, among Hindus 179·59 and 161·89, and for Indian Christians 89·57 and 71·26 for male and female infants respectively. For "other classes" the rates are stated as "4000·00 for males and 8400·00 for females." There is here a superabundance of ciphers. Possibly 400 and 840 are the ratios intended, or possibly 40 and 84 per 1000. The actual numbers of deaths are stated in Form IV., p. ix., as 52 males and 20 females.

Cholera had caused 19,215 deaths in the preceding year (0·94 per 1000); during 1922 there were 128 deaths (0·01 per 1000). 16 districts were affected, but only in Ambala was there an epidemic prevalence, with 78 deaths (0·12 per 1000), of which 75 occurred in June, July, and August. The first cases were recorded in Lahore in June, where the disease was introduced from Hardwar; Ludhiana district was next infected, also from Hardwar; then Ambala. The Sun Eclipse Fair at Thanesar (near Ambala) was attended by about 500,000 pilgrims. Cholera broke out, but there were only 16 cases and 8 deaths. This, the report states, speaks highly for the very efficient and elaborate arrangements made by the public health department to meet all contingencies. After the dispersal of the pilgrims one case and one death occurred in Panipat, but otherwise there was no spread of the disease in consequence of this Jair. It is to be hoped that some acknowledgment has been, or will be, made to the medical department for this magnificent success in dealing with a crisis of such urgency.

The *small-pox mortality* fell from 0·22 per 1000 in the previous year, and 0·33 in the quinquennium, to 0·08 (para. 23 and Form VIII.). Simla was quite free from the disease, and in the other districts the death-rate ranged from 0·002 in Karnal and in Ambala, to 0·33 in Lahore and 0·37 in Gujranwala. In the towns the ratio was 0·32, and in the rural areas 0·05; 114 out of the 156 towns escaped the disease altogether; in the remaining 42 there were 659 deaths; 286 of these occurred at Lahore (1·11 per 1000) and 159 at Gujranwala (4·20 per 1000).

There was an increase in *plague mortality* (7837 deaths, as compared with 2896 in 1921), but the death ratio (0·38 per 1000) was much less than the quinquenial average (1·21). Jhalum district suffered most with a ratio of 3·1; no other district exceeded 1·62 (Shahpur), and the whole of Ambala division, as well as Kangra, Hoshiarpur, Ferozepore, and Muzaffargarh districts were entirely free. The most noticeable feature in the history of the disease, says Colonel Forster, was the infection of Murree town. All indications point to the infection being introduced by infected fleas or rats carried in carts loaded with grain, fruit, or vegetables, but the outbreak was soon brought under control, and there were only eight deaths. It may be noted, he continues, that our hill stations have displayed a marked immunity to plague, Kasauli being the only other hill station definitely known to have suffered (in 1904). Rat destruction has been carried out systematically, and on the whole the attitude of the people towards anti-plague measures is improving. *Fever deaths* registered numbered 306,654 (14·95 per 1000, as compared with 20·62 in 1921, and 28·83 for the quinquennium). Karnal district suffered most (24·9), while in the adjoining district of Ambala the ratio was only 12·7 per 1000. Obviously it is not "climate," but local conditions that cause this mortality. This classification of relapsing fever may, however, account for some of this excessive death-rate. In the rural circles the fever mortality was 15·26, ranging from 10·47 in Sheikhupura (Lahore Division) and 10·74 in Jhang (Multan Division), to 19·15 in Mianwali (Rawal Pindi), 19·20 in Dera Ghazi Khan (Multan), and 25·69 in Karnal (Ambala). In the towns the mortality was 12·10. Gidarbaha in Ferozepore district and Chuharkana Mandi in Sheikhupura returned ratios of 0·77 and 0·78 per 1000 respectively; while at Kalabagh in Mianwali district the ratio was 28·14, and at Khudian (in Lahore) 42·16 per 1000.

The deaths recorded from *influenza* numbered 35, of which 13 occurred at Simla, where a mild form was somewhat prevalent throughout the year (115 cases). At Simla also diphtheria was more prevalent than usual, 28 cases and 3 deaths; 15 cases occurred at Bishop Cotton's school. The sanitary conditions were inspected, and remedial

* Lahore: Government Press. 1923.

measures set in progress. Relapsing fever in a mild epidemic form was reported in the Hissar district early in the year; there were 150 cases and 78 deaths. In October it appeared also in a mild form in Rawal Pindi district (104 cases and 35 deaths); in the same month the disease broke out in a severe form in Muzaffagarh, but apparently was not recognised as such until December. "The extreme poverty and filthiness of the people rendered disinfection over such a wide area extremely difficult; most of the people had no clothes other than the vermin-infected rags that they wore." A rapid expansion of the system of district health officers is required to ensure prompt recognition of the disease. The adoption of a system of itinerating medical officers to give arsenical treatment is recommended. Typhus fever occurred in small outbreaks in Rawal Pindi district and in the Bhajji State (Simla Hills), but was quickly overcome; no typhoid prevalence is mentioned. A notable improvement is recorded in regard to *dysentery* and *diarrhœa*, the mortality from which was 0·34 per 1000, as compared with 0·58 in 1921 and 0·54 for the quinquennium. The ratio varied from 0·02 in Hoshiarpur and Sheikhupura districts, to 1·37 in Simla and 2·69 in Rawal Pindi. Respiratory diseases also showed a decrease, the mortality being 1·95 per 1000, against 2·72 and 2·47 for the preceding year and the quinquennium respectively. In Ambala and in Gurdaspur districts the ratios were 8·74 and 5·31. In Muzaffargarh and Shahpur only 0·21, and in Montgomery only 0·19 per 1000. *Deaths from injury* in the province numbered 6153, being in a ratio of 0·30, as compared with 0·32 per 1000 in 1921 and 0·34 for the quinquennium; most of these were from accident (4091). *Rabies* caused 130 deaths. At the Kasauli Pasteur Institute 1939 patients underwent treatment, against 1677 in the preceding year; 192 were Europeans. There were 7 deaths and 4 failures among Indians, apparently none among Europeans.

In the appendix it is stated that "the present annual grant of 4 lakhs falls far short of the needs of the Sanitary Board, which was petitioned for aid during the year to the extent of 9 lakhs. On account of financial stringency no increase in the allotment could be made, but when circumstances permit, it is hoped that the Board will be accorded generous treatment."

Punjab Lunatic Asylum.

In the report for 1922* it is stated that the total number of inmates fell from 1248 in 1920 and 1204 in 1921 to 1168 in 1922, the decline being due to decrease in admissions from overseas; but the daily average strength rose from 862·81 in 1920 to 864·6 in 1921, and 867·2 in 1922. The report states that the accommodation of the asylum is taxed to its utmost at present. The percentage of cures to average strength was 13·03, as compared with 12·40 in 1920 and 15·96 in 1921. The death-rate, 6·69 per cent. of strength, showed a great improvement on the ratios for 1921 (11·22) and 1920 (12·63). Of the total 1168 cases, 139 (all males) were suffering from the effects of *Cannabis indica*; 90 were epileptics (71 males), 84 idiots (55 males), and 23 imbeciles (20 males); while 175 (162 males) are returned under melancholia. Among the 342 admissions during the year *Cannabis indica* insanity heads the list with 55 cases (all males), as stated on p. xxiii. (Statement vii.); in Statement vi. the number admitted is shown as 47. As there are three obvious press errors in this page (xvii.), it may be presumed that the figure in Statement vii. is more likely to be correct. In regard to the general health of the inmates, dysentery and diarrhœa, as usual, accounted for most of the admissions to hospital (83 cases and 7 deaths). In 1921 there had been 142 admissions for these diseases, with 21 deaths. A tuberculous section of the asylum was opened in 1921, and better facilities are now available for the diagnosis and treatment of this disease in its early stages; 52 cases were treated during the year. This report is signed by Col. R. Heard, I.M.S., Inspector-General of Civil Hospitals for the province, who states that Major H. W. V. Cox, I.M.D., was in charge until Nov. 13th and administered the asylum with zeal and marked ability. He was succeeded by Capt. C. J. L. Patch, M.C., I.M.S.

WHY IT CANNOT BE PUBLISHED

IN the June number of the *Nation's Health*, an American journal, there is a paper with the above heading, in which Lowell V. Collins and Susa P. Moore have attempted to analyse the controlling factors in the acceptance and rejection of manuscripts. They refer to a famous writer, whose name they withhold, who traced much of his success to an early understanding of the significance of the rejection slips with which he, like all young writers, was submerged. With rare perspicuity he came to the conclusion that the fault lay with himself. They suggest to writers on health subjects that they consider the time and labour required by the readers of their writings as well as the time and labour required by the author. In this connexion they refer to the following instructive incident. A short article on a health subject was written hurriedly and then read by the author at a normal rate which took 15 minutes. He then revised and condensed it, taking 40 minutes in the process. It was now found that his message could be read in about 10 minutes, and that the style of his article had considerably improved. After publication it was estimated that 25,000 persons would read the article, and each would save five minutes because of the author's revision. "In this way, more than 2000 hours of profitless reading was avoided at the cost of 40 minutes' revision." Reading aloud his own manuscript is a discipline which, it is urged, every author should inflict on himself, and the advice is none the less good because so old. The procedure serves to emphasise the clumsiness of reiteration, the importance of proper punctuation, or the need for rearrangement. Potential authors are reminded that health articles should sparkle with interest and originality, having the power to pique curiosity and hold interest continuously, and here we feel definitely antagonistic to the mentors, for articles written with the intention to sparkle, to hold, or to pique form the gloomiest literature that masquerades as scientific.

PENAL REFORM.

WE have received a copy of the third issue of the *Howard Journal*, the organ of the Howard League for Penal Reform, which is described as "a review of modern methods for the prevention and treatment of crime and juvenile delinquency." This number contains original articles on such subjects as crime and insanity, and the medical examination of delinquents, a long review of the report of the Prison Commission, foreign news, and book reviews; the total contents run to rather more than 80 pages. The Howard League stands for an educative and humane rather than a punitive policy in prison administration, and favours the abolition of the death penalty. Particular emphasis is laid on the need for medical examination and treatment in the numerous cases where crime is possibly attributable to mental defect or disorder.

A PROTECTIVE SHIELD FOR WOMEN SUFFERING FROM MENORRHAGIA.

WOMEN with menorrhagia often suffer more from the dread of insufficient protection than from the physical discomfort of excessive menstrual flow, and a form of neurasthenia amounting to an anxiety state occasionally results in those who cannot lie up at these times. Nash's self-fixing "Surmeto" Hygienic Mene Shield is an all-rubber shield, easily cleaned, rather larger than an ordinary sanitary towel, in which the latter can be securely fixed through strips of rubber without difficulty, and no further anxiety as to possible leakage need occur. The shield can be obtained from chemists or drapers, or direct from the proprietors, Messrs. Nash and Sons, 29, Kyverdale-road, London, N. 16, for 2*s.* 6*d.*

UNSIGHTLY WARTS.

To the Editor of THE LANCET.

SIR,—I should be grateful if any fellow practitioner could advise as to the treatment of small, multiple soft warts on the back of the hand. Cauterisation with nitric or glacial acetic acid produces very unsightly scars with the larger ones, and does not affect the smaller ones, only causing burns of the surrounding skin surface. Lime-water taken internally has had no effect. The warts are unsightly, and cause annoyance to the patient.

I am, Sir, yours faithfully,

G. S. SANDER, M.D.

Claremont, Wateringbury, Kent, July 27th, 1924.

ARTIFICIAL RESPIRATION.

To the Editor of THE LANCET.

SIR,—I have read with interest Dr. E. Seaborn's notes on the above subject in THE LANCET of July 19th, and being a devoted M.O. to an ambulance division I fancy the same would find acceptance as an "occasional lecture." I notice that there is no allusion to "Laborde's method," and we teach that it is useful in cases (1) of injury of chest and shoulder-girdle, (2) in children, (3) in electric shock, and as supplementary to other methods under various circumstances. Moreover, personally, being a sufferer from bronchial asthma with dyspnœa, I have fancied that (in private of course) the forcible protrusion of the tongue a few times resulted in ampler inspiration. Whether this is merely due to the after-effect of holding the breath while the tongue is being protruded, or due to the nervous mechanism, I do not like definitely to assert.

I am, Sir, yours faithfully,

Lancaster, July 25th, 1924. H. C. LAMPORT.